Industrial FINISHING

Serving
THE SOUTHEAST *for*

LACQUERS
SEALERS
FILLERS
TONERS
GLAZES
PIGMENTED WIPING STAINS
NGR STAINS

Complete Technical Service At Your Disposal

Snyder
BROTHERS COMPANY
Manufacturers **INDUSTRIAL** *of Quality* **LACQUERS**

P. O. BOX 548 — TOCCOA, GEORGIA

TO GIVE YOUR PRODUCT A GOOD START, GIVE IT AN INTERCHEMICAL FINISH!

Undercoats . . . Varnishes . . . Lacquers . . .
Enamels for Metal . . . Plastic . . . Wood

AULT & WIBORG, MURPHY, ROXALIN, AND IC ARE TRADEMARKS OF INTERCHEMICAL CORPORATION

new strippers

are available even more powerful than Enthone Regular Enamel Stripper which has been used by industry for the past fifteen years. These new strippers include:

stripper S-15:
For stripping nitrocellulose lacquers.

stripper S-17:
A volatile room temperature stripper for removing heavy coatings from work holders, hooks and production work.

stripper S-19:
A powerful quick evaporating room temperature stripper for clear and pigmented synthetics.

stripper S-45:
A brush-on, thickened spot enamel stripper for synthetics.

stripper P:
A stripper mixed with water to form a clear dispersion that strips alkyd, ureaformaldehyde and melamine synthetic enamels.

stripper S-300:
An emulsion stripper that mixes clearly with water for fast stripping of synthetic enamels from all metals.

stripper WS-70:
A quick evaporating stripper for removing enameled coatings from wire.

Also special strippers for specific problems.

For fifteen years Enthone chemists have specialized in development of strippers for organic finishes. Take advantage of their experience and send samples of your products to them for stripping advice.

THE BETTER THE FINISH, THE BETTER THE BUY

doesn't just happen! It is the result of the good, old-fashioned *teamwork* we sincerely practice – teamwork that results in efficient production of quality finishes . . . which in turn contributes to the high quality and economical operation of the fine manufacturers who use our finishes.

Teamwork: out of weekly staff meetings come new approoches, new procedures, that step up efficiency and service.

The Better the Finish,
the Better the Buy

GRAND RAPIDS VARNISH CORPORATION
GRAND RAPIDS, MICHIGAN
Makers of the Famous Guardsman Finish
and Guardsman Cleaning Polish

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the 18th of each month by
PRACTICAL PUBLICATIONS
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Industrial FINISHING

W. H. ROHR, Editor P. C. BARDIN, Associate Editor

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Acceptance under Section 34.64, P. L. & R., authorized

TWENTY-SIXTH YEAR OF PUBLICATION

More Color In Housewares. At the 13th National Housewares Show held in Atlantic City last month the accent was on color, simplicity and streamlining for efficiency.

Some improvements on old fashioned products were in evidence—an ironing board on wheels—an oval-shaped pail for easier pouring, filling and carrying; kitchen containers and an electric knife grinder that sharpens both sides of a knife at the same time. Nylon molded handles on many items were prominent.

Colors and decoration was the keynote. Some were silk-screened designs on odd shaped items.

* * *

Cork Top Tables made their appearance in a New York department store showing recently. The bleached white cork was evidently sealed and heavily waxed to make cleaning easy. Some tops are banded with a slim beading of dark cordovan while others are of sand-blasted wormy chestnut finished natural so that the chestnut and cork are practically same color.

Cork tops are said to be practically indestructible, resistant to heat, stains and water. The waxed surface prevents scratches from showing.

READ EVERY WORD ON PAGE 41 THIS ISSUE! [ADV'T.]

Christmas Displays. At a recent market held in New York by the National Association of Display Industries, retailers placed their orders for mechanized and special items for Christmas displays.

More than 100 exhibitors showed their wares. Many displays are wired for sound effects. Santa Claus still holds top billing, surrounded by storybook characters and scenic effects. One firm brought Santa up to date, showing him riding a "flying saucer" with three gnome helpers perched on the rim. It appears to be floating over fleecy clouds.

This is one industry where the finisher really comes into his own.

* * *

"Getting the Right Job," a unique booklet designed for recent college and high school graduates, has been publishd by the Glidden Company, Cleveland, Ohio.

Filled with helpful pointers for jobseekers, the 16-page booklet was prepared by John H. Weeks, director of personnel relations, who points out in the introduction that getting the right job is about 90% preparation and 10% presentation. "Competition for jobs is becoming increasingly great", Mr. Weeks said, "and the applicant who follows the basic job-seeking procedures will have a better chance of getting the job he wants. Following these steps, which are almost uni-

(Continued on page 7)

Dolan's 35% HI-SOLIDS LACQUER

. . . sprays right from the drum: requires no thinning or heating. 35% solids in a single application.

OUTSTANDING!!

. . . Because it can be sprayed without the addition of thinners or the necessity of pre-heating to bring down to spraying viscosity, Dolan's 35% Hi-Solids Lacquer gives an improved finish at greatly reduced cost. It is unusually tough, with exceptional cold check resistance. Very light in color. Fits into any finishing schedule. A demonstration will prove convincing.

"From the start consider the Finish"

V. J. DOLAN & COMPANY, Inc.

Manufacturers of *"Unquestionable Quality"*

INDUSTRIAL FINISHES

1830 N. Laramie Ave. Chicago 39, Ill.

BErkshire 7-0100

NON-INFLAMMABLE **ELECTRO** NON-INJURIOUS

COLD STRIPPER

FOR REMOVING ALL TYPES OF PAINT

FASTEST *in Action* **LOWEST** *in Price*

WRITE FOR TESTING SAMPLE OR ORDER
5-GALLONS AT DRUM PRICE

Allied Finishing Specialties Co.

2641 W. Grand Ave. • Chicago 12, Illinois

SLASH MAINTENANCE COSTS!

by using

PLASCOTE NO. 1

The new peelable plastic boothcoating.

- It is applied quickly and easily by use of ordinary paint spray equipment, or by brushing.
- Inflammable over-sprayed paints may be peeled from the spray booth walls in large sheets.
- Actual using reports prove Plascote No. 1 will cut booth cleaning time in half.
- Shipped ready to apply; no pre-mixing necessary.
- Economical to use due to its extensive coverage per gallon.

TEST SAMPLE OFFER:

Order 5 gallons at the drum price of $1.95 per gallon.

CHEMCO PRODUCTS COMPANY, Inc.

7740 WEST 47TH STREET LYONS, ILLINOIS

versally accepted, creates a favorable impression since it saves time both for the applicant and the interviewer."

The booklet is being distributed to high school and college libraries throughout the country. Copies are available, without charge, from The Glidden Company, 1936 Union Commerce Bldg., Cleveland 14, Ohio.

* * *

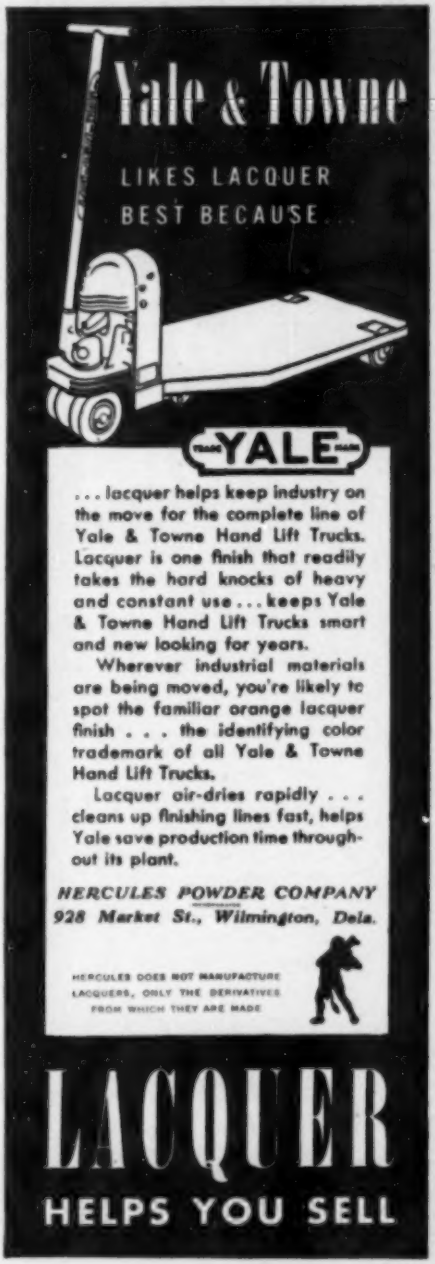
Synthetic Fuels. Current shortages and increasing requirements for benzene and phenol have induced the Bureau of Mines to undertake an investigation of these and other chemicals available in producing synthetic liquid fuels from coal and oil shale.

Major objective of the study, in which the National Security Resources Board has expressed interest, is to determine the most desirable processes for producing chemicals in conjunction with synthetic fuels. Potential benefits would include 1) a new source of those chemicals either now in short supply or expected to be in time of emergency; 2) a supplementary source of aromatics or other special fuel components required by the armed forces; and 3) reduction of the cost of synthetic liquid fuels by the co-production and sale of chemicals.

* * *

The Forman Insulating Screw is a new fastener comparable in strength and accurary to a standard metal screw, yet it has the additional merits of electrical insulation, shock resistance, and virbration damping.

Basically, the new fastener consists of a serrated metal core which has been extrusion-coated with the thermoplastic material. The type of core and plastic used depends entirely on the use to which the screw will be put. After the extrusion process, the resulting composite rod is cut in an automatic screw machine to form accurate threads and a strong head. The metal core runs the entire length of


Yale & Towne
LIKES LACQUER
BEST BECAUSE...
YALE
... lacquer helps keep industry on the move for the complete line of Yale & Towne Hand Lift Trucks. Lacquer is one finish that readily takes the hard knocks of heavy and constant use ... keeps Yale & Towne Hand Lift Trucks smart and new looking for years.
Wherever industrial materials are being moved, you're likely to spot the familiar orange lacquer finish . . . the identifying color trademark of all Yale & Towne Hand Lift Trucks.
Lacquer air-dries rapidly . . . cleans up finishing lines fast, helps Yale save production time throughout its plant.
HERCULES POWDER COMPANY
928 Market St., Wilmington, Dela.
HERCULES DOES NOT MANUFACTURE LACQUERS, ONLY THE DERIVATIVES FROM WHICH THEY ARE MADE
LACQUER
HELPS YOU SELL

HAVING HARD LUCK

with your

ONE-COAT HAMMER?

SWITCH TO

POLYTONE

- There's no fuss, no bother, no mess with Polytone. Sprays easily.
- Excellent adhesion to steel, copper, brass, aluminum, zinc die castings, tinplate, bakelite.
- Bakes to full hardness in 30 minutes at 275° F. or up to 2 minutes at 400° F.

SEA-LAC

Duralac Chemical Corp.

84 LISTER AVE., NEWARK 5, N. J.

the screw and furnishes most of the screw strength. The plastic exterior gives the new screw all of its extra insulating and sealing qualities. The metal core carries the torque applied by a screw driver or other driving instrument. There is no danger of the plastic chipping or cracking under torque.

* * *

Talc particles, 55 times smaller than can be seen by the human eye, are being produced by the Gouverneur Talc Co. in upstate New York. This plant is turning out 200 tons of talc a day to meet the needs of paint, ceramic, and cosmetic manufacturers as well as other industries which use talc as a filler.

The talc is reduced to micron and submicron sizes in a revolutionary type of airpowered pulverizing mill. The most unusual feature of the mill is the lack of moving mechanical parts in this "fluid energy reduction" process. Crushed rock enters the mill through a venturi-injection system, and is picked up by blasts of hot compressed air and set in motion. Talc particles in the mill circulate at a very high velocity. Under the furious agitation of the jets of air, the fast moving particles bombard each other causing almost complete distintegration.

Although there are only a few pounds of talc in the mill at any time, the speed is so high that as much as six tons will pass a given point in one minute. Each time a particle circulates about the chamber it becomes smaller, and it may require as many as 1500 to 2500 round trips before it reaches the proper size.

* * *

Metal Show. The year's most important meeting of this industry—the National Metal Congress and Exposition—has shifted its emphasis from the economies in production to the

(Continued on page 108)

Uniformity

IN

LACQUER THINNERS

"20,000,000 gallon reasons"

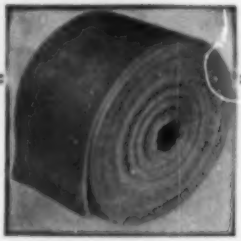
BARKER

BARKER CHEMICAL COMPANY

One of America's Largest Manufacturers of Lacquer Thinners

2258 SOUTH UNION AVE. CHICAGO 16, ILLINOIS

NOW! Tack Cloth in Handy Rolls *or* Cut Bulk



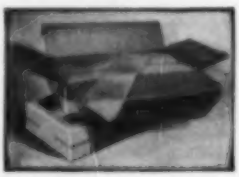
Cut off any size piece and use as needed.

Now you can get Tack Cloth packed the way it's easiest for you to use—either in 150 yard rolls of 36" wide cloth or in handy cartons—100 or more Tack Cloths to the carton.

No matter which way you buy it, you can be sure that every square inch will **stay** SOFT and TACKY until the very last bit is used up.

The Cut Bulk size is 18" x 36"—folded to 4½" x 18" for easy handling. **All of our Tack Cloth is Spontaneous Combustion-Proof, Lint-Free and Wax-Free.** It's clean and sanitary—there's no waste.

Write today for complete information, prices and samples.



Already cut and folded, ready to use.

Baughn Chemical Products Company

"The Tacky Wiper Specialists"

7027 N. RAVENSWOOD CHICAGO 26, ILL.

Also Individually Packed in Glassine Envelopes —144 to the Carton.

A WARRANTY OF SATISFACTION IN EVERY CARTON

BARRETT CENTRIFUGALS

The Barrett Centrifugal Enameler

FILWHIRL ENAMELERS—For Coating, Japanning, Enameling—Articles.

TYPHOON WASHERS — For Washing Metal Parts, Forms, etc.

CYCLONE DRYERS—For Drying Small Metal Parts, Forms, etc.

WHIZO GALVANIZER—For Throwing Off Excess Molten Metal. Used for Tinning or Galvanizing Small Articles.

DIPSPIN RUSTPROOF — Transparent Protector, Oiling and Slushing.

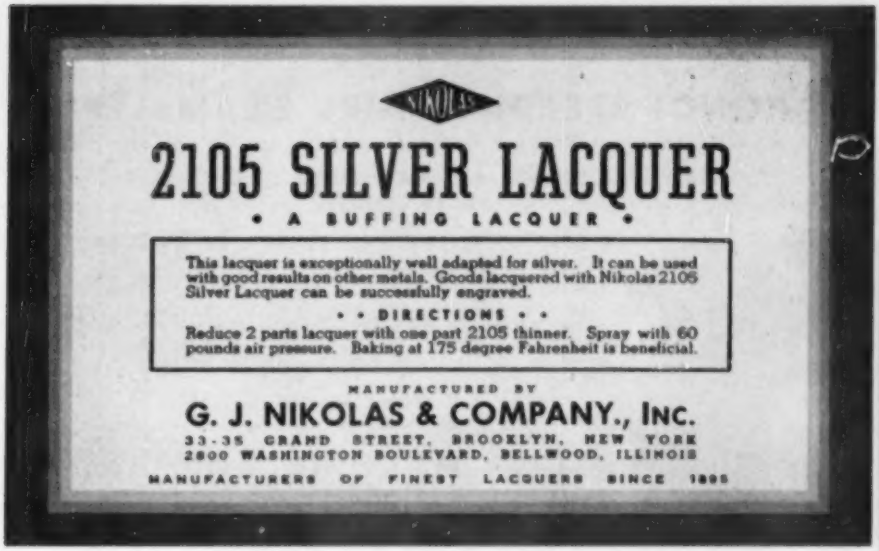
HYDROSTATIC IMPREGNATORS—For Processing Wire Coils, Paper Tubes, Fabric, etc.

OIL EXTRACTORS—Oil from Chips and Parts —Forms, etc. Liquids from Solids.

THE LEON J. BARRETT COMPANY

Designers and Builders of Centrifugal Machinery

1703 GRAFTON ROAD WORCESTER 1, MASS.


NIKOLAS
2105 SILVER LACQUER
• A BUFFING LACQUER •
This lacquer is exceptionally well adapted for silver. It can be used with good results on other metals. Goods lacquered with Nikolas 2105 Silver Lacquer can be successfully engraved.
• • DIRECTIONS • •
Reduce 2 parts lacquer with one part 2105 thinner. Spray with 60 pounds air pressure. Baking at 175 degree Fahrenheit is beneficial.
MANUFACTURED BY
G. J. NIKOLAS & COMPANY., INC.
33-35 GRAND STREET, BROOKLYN, NEW YORK
2800 WASHINGTON BOULEVARD, BELLWOOD, ILLINOIS
MANUFACTURERS OF FINEST LACQUERS SINCE 1895

This Label is used for the finest clear lacquer yet produced for — Plated Goods — Silver Nitrate Films — Holloware — Cellulose Acetate Butyrate Plastic — Vaporized Metal Coatings — and many others.

- **Fast Drying**
- **Water White**
- **Crystal Clear**
- **Non-Discoloring**
- **Excellent Adhesion**
- **Mar-Resistant Hardness**

For Full Information, write—

G. J. NIKOLAS & CO., Inc.

Manufacturers of Finest Lacquers Since 1895

2850 WASHINGTON BLVD.
BELLWOOD, ILLINOIS

33 GRAND ST.
BROOKLYN, N. Y.

RONCI SPEEDIP WHIRL ENAMELER

Made in Two Sizes, R-100 and R-200 Capacity 312-cu.in. and 1206-cu.in.

IDEAL FOR LACQUERING AND ENAMELING SMALL PARTS UP TO 7-IN. IN LENGTH

CUTS COSTS, SAVES UP TO 80% OF MATERIAL

Carries up to 75-lbs. per load, and up to 30 loads per hour can be coated with lacquer or enamel in these machines.

All operations are within the machine. Dipping tank is raised, submerging the parts in the basket, and then lowered and the parts whirled, throwing off excess material. No additional outside tanks required; no cleaning necessary when changing colors; no loss of material.

PROMPT DELIVERIES

Write for further information and submit samples to be coated.

RONCI MACHINE COMPANY

A Division of F. Ronci Co., Inc.

2 ATLANTIC BOULEVARD CENTREDALE 11, R. I.

I. C. D. FORMULA NINE

NON-INFLAMMABLE « *wax free* REMOVER »

for paint, varnish, lacquer, baked enamel, adhesives

EASY TO APPLY—NO AFTER CLEANING

I. C. D. FORMULA 9 is the standard of safety and quality . . can be sprayed or brushed . . doesn't raise grain nor discolor . . quickly removes all kinds of finishes and coatings from any surface or material . . costs less to use . . saves time, labor and material.

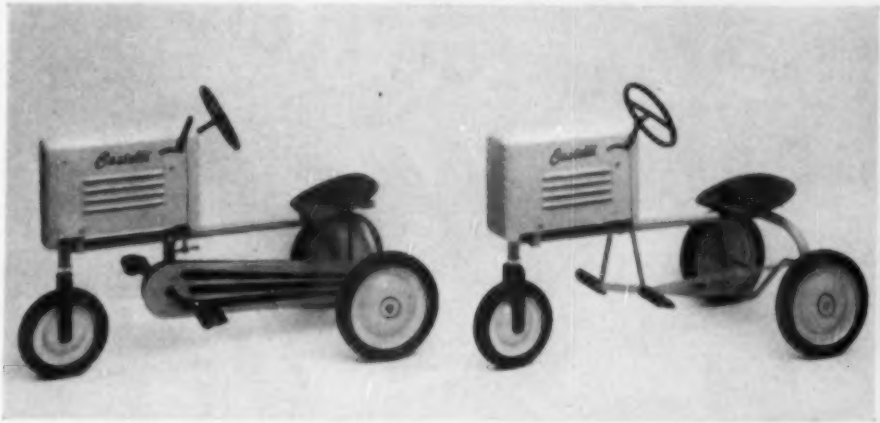
BRUSH CLEANER I. C. D. — non-inflammable brush cleaner works fast . . does not injure nor loosen the bristles. Easy to use . . leaves the bristles clean as a whistle. Order a gallon can and convince yourself.

ORDER TRIAL GALLON AT DRUM PRICE

INDUSTRIAL CHEMICAL DEVELOPMENT CORP.

515 FLUSHING AVE BROOKLYN 5, N. Y.

RANDOLPH *congratulates . . . .*
F. C. Castelli Co., Philadelphia, Pa.



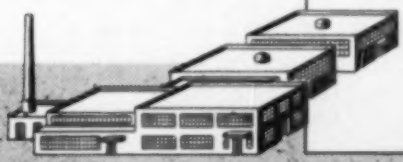
THE NEW CASTELLI "FIRE CYCLE"

The Randolph Products Company, manufacturers of industrial coatings, lacquers and synthetic products, encourages creative initiative, technical know-how, marketing insight, not only in its own organization but in others. It offers its congratulations to the F. C. Castelli Company on the latest addition to its toy line, the "Fire Cycle," dramatically-appealing to the young, would-be firemen of the nation. It offers its congratulations, too, on the Castelli Company's choice of an enamel to give this fine article the perfect finish for a smart appearance that will last—a SINGLE ECONOMICAL coat of Randolph Fast Baking Durable S. G. Enamel.

For best results with your own products, rely on a Randolph Finish. Randolph finishes include Lacquers, Enamels, Dopes, Thinners, Clear S. G. for Metal, Colored Lacquers, Texture Enamels, Aircraft Finishes, Specialized Production Finishes. Give your product a selling "lift" with a Randolph finish.

Inquiries Invited

Our staff stands ready to consult with you in connection with your finishing operations. If you have any finishing problems, our technicians will be glad to sit down and solve them with you—without any obligation to you, of course.



RANDOLPH
PRODUCTS COMPANY
CARLSTADT, NEW JERSEY

DOPES · LACQUERS · ENAMELS · THINNERS

THE Lilly COMPANY

FINESSES

High Point, N. C.

hold the winning hand

Whether it's canasta or plain spit-in-the-ocean, you can't count on being a consistent winner because you can't always hold the winning cards.

But one thing is CERTAIN. You can be SURE of a better tomorrow if you plan for it—save for it—today.

The secret is regular saving. And millions of thrifty Americans have found that Payroll Savings is the right saving plan for them.

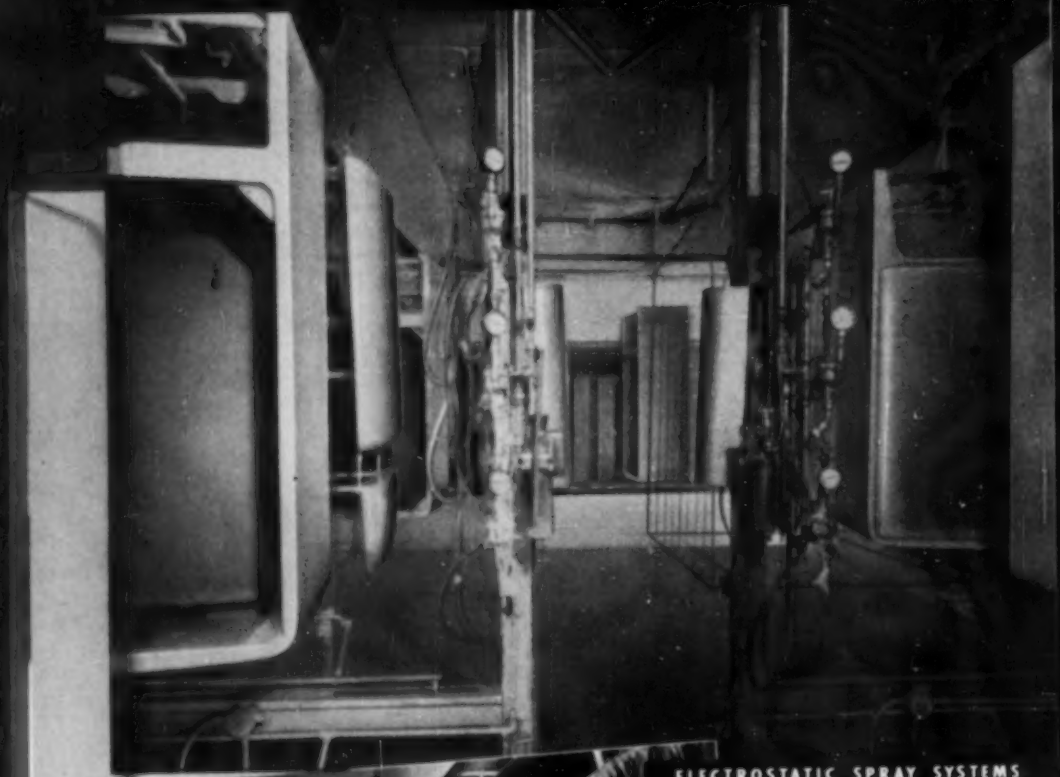
. . . . . And one other thing is CERTAIN—you can be SURE of the finish on your product if it comes from any of the three plants represented by the Lilly Key. All three of these plants (Indianapolis—High Point—Gardner) have facilities and knowledge, gained from years of experience in making specific finishes for specific products and purposes, to produce a finish for your product that you can be SURE of. Make certain of the finish on your product by contacting the Lilly plant nearest you.

"WITH THE RIGHT FINISH—YOU'LL FINISH RIGHT"

THE Lilly FINISHES VARNISH COMPANY

Indianapolis, Indiana
Gardner, Mass.

COMPLE



ELECTROSTATIC SPRAY SYSTEMS

Above is a new Mahon Hydro-Filter Spray Booth with the new "Hydraire" Flood Sheet (Pat. Appl. For) which was specially designed for Automatic Electrostatic Spraying of Synthetic Enamel in the plant of a large refrigerator manufacturer.

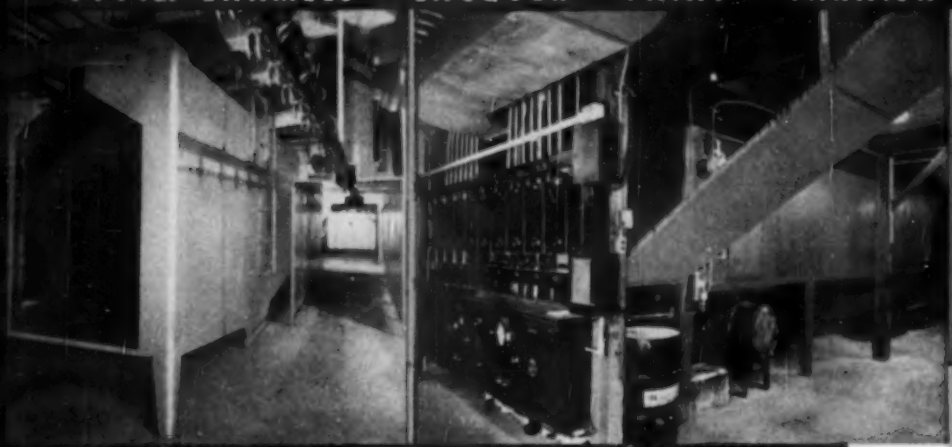
. . . the EXPERIENCE that goes into the PLANNING and ENGINEERING of a MAHON FINISHING SYSTEM is the item of GREATEST VALUE to YOU!

M

E

SYSTEMS

. . . for ENAMELS • LACQUER • PAINT • VARNISH



FLOW COATING SYSTEMS DIP ENAMELING SYSTEMS

Modern Mahon Equipment will CUT YOUR COSTS TOO, and Give YOUR PRODUCT a BETTER FINISH!

When you make a capital investment in new finishing equipment, you should be satisfied that you are buying the most modern equipment available, because, the equipment will be in operation in your plant for a number of years. Development and experimentation never ceases in Mahon's laboratories . . . new methods and new equipment are constantly being perfected to produce better results in production finishing, and to do it at a lower cost per unit. That is why so many leading manufacturers throughout the world pay a little more for modern Mahon equipment . . . they know that they are getting better planning, better engineering, and therefore, better equipment, which will pay dividends in lower production costs throughout its period of amortization. When you consider new finishing equipment, remember that the Mahon organization has pioneered development in this highly specialized field for over thirty years—and that Mahon engineers have, through constant research and experimentation, accumulated a wealth of technical knowledge and practical know-how not available to you elsewhere. See Mahon's Insert in Sweet's Mechanical Industries File, or write for Catalog A-650.

THE R. C. MAHON COMPANY

HOME OFFICE and PLANT, Detroit 34, Mich. • WESTERN SALES DIVISION, Chicago 4, Ill.

Engineers and Manufacturers of Complete Finishing Systems—including Pickling Equipment, Metal Cleaning and Rust Proofing Equipment, Dry-Off Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Systems, and Drying and Baking Ovens; Core Ovens, Hydro-Foam Dust Collectors, Fog-Filters, and other Units of Special Equipment.

AHON

Desk of a Salesman . . .

Standard Peg Board No. 150
Made by Prest-Wheel, Inc.
Oxford, Mass.

The instant Jackie Wilson spotted this peg-board desk in Lawson's Toy Store window, he launched a campaign to sell his father on the advantages of ownership. The sales report you see (just completed by Jackie) proves the campaign was successful.

And while we're glad to share the credit, we're reserving some of it for the brilliant Kirco "Twin-Coat" finish with which the manufacturer chose to stress visual appeal. This finish can be air-dried (to handle in 5 minutes) or baked (up to a week or more later).

Extreme durability, full color range, finishes from gloss to flat, and variable baking time are other essential characteristics of Kirco "Twin-Coat," another great industrial coating by the Kirker Chemical Company.

KIRCO Kirker CHEMICAL COMPANY

ONE EAST ELEVENTH STREET • PATERSON 4, NEW JERSEY

MULTI-PURPOSE

NEW TYPE COATING

1. Prolongs product life

2. Cuts structural maintenance costs

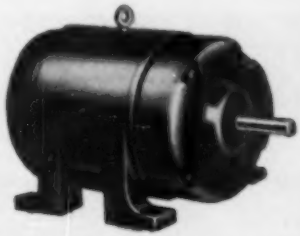
Rust-Chek
COATING

resists water, salt and fumes

Originally developed, on special request, to stop excessive corrosion of railway track in tunnels, this new type coating is finding ever broadening acceptance as both a product undercoat and for maintenance painting as a 2-coat operation.

Rust-Chek has exceptional resistance to water, salt and acid fumes; retains, through long years of service, unusual qualities of flexibility and adhesion that definitely prevent chipping, cracking or peeling.

Investigate now! Skilled Rinshed-Mason engineers to help you!



For PRODUCT UNDERCOATS

Corrosion-resistant, tough and durable, Rust-Chek is highly recommended as a product undercoat, and especially if the product will ultimately be subjected, in use, to corrosive atmospheres and moisture. *May also be used as a finish coat if high gloss and special coloring are not required.*

For STRUCTURAL STEEL

Bridges or factory structural steel work can be quickly and easily coated with Rust-Chek, adding countless years of life and greatly lengthening time between coats. Rust-Chek puts up a solid front against salt spray, fumes from processing equipment, etc.

Write for DESCRIPTIVE FOLDER

Free Descriptive Folder and specifications will be sent you on request. Test sample will also be forwarded if wanted.

RINSHED-MASON CO.

5935-71 MILFORD AVE., DETROIT 10, MICH.

A Beautiful Finish

Makes the Heart Grow Fonder . . .

It takes fond hearts to make sales—industrial, wholesale, or retail. For a buyer must fall in love with a product before it can be sold and contribute toward profits. *That's where* ZAPON *comes in!*

For a metal finish that has striking beauty, durability, and resistance to use and abuse—try ZAPON. Our Customer Development and Customer Service Departments will "tailor" a finish suitable for *your* product and *your* production line. Why not turn your finishing problems over to us?

Service from every angle . . .

that's ZAPON

ATLAS POWDER COMPANY

Industrial Finishes

Stamford, Conn. · North Chicago, Ill.

Ransburg Electrostatic Spray Process

Ups Production

on product after product

CALCULATOR MANUFACTURER "Records show that the Ransburg Spray Process has helped increase our production 300%."

BABY CHAIR MANUFACTURER "Our production is now two and one half times greater, thanks to the Ransburg Spray Process."

APPLIANCE MANUFACTURER "Our production increased threefold after we installed the Ransburg Spray Process."

Production goes up and costs go down when you switch to the Ransburg Electro-Spray Process. The dollar-and-cents proof, on product after product, is yours to inspect. Write today for data on installations in your field.

RANSBURG

RANSBURG ELECTRO-COATING CORP.

Indianapolis 7, Indiana

Another product of SHERWIN-WILLIAMS INDUSTRIAL RESEARCH

TELEVISION LACQUER

A new and finer finish . . . with new, high resistance to cold checking . . . new durability . . . new all-round performance!

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Sherwin-Williams Wood Finish Technicians developed one of the first lacquers to solve this and similar problems. This finish —Television Lacquer—has now been thoroughly tested for more than two years in the laboratory and in service on leading makes of television sets, with outstanding results.

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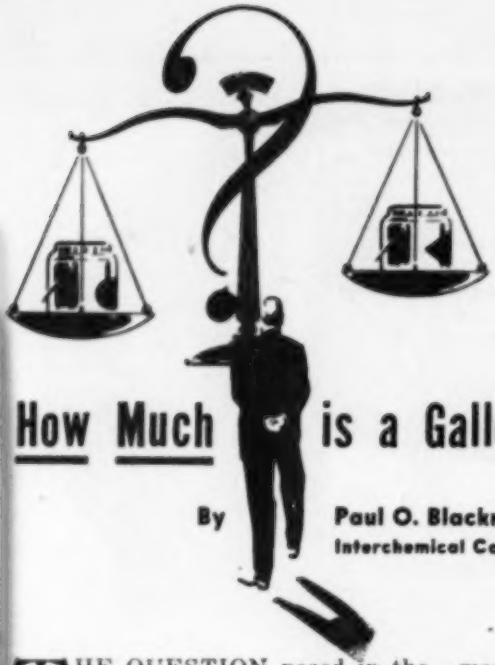

What yardsticks of value to use when you are selecting suitable protective or decorative paints for your manufactured products.

How Much is a Gallon of Paint Worth?

By **Paul O. Blackmore**
Interchemical Corporation, Finishes Division*

THE QUESTION posed in the title of this article is one that every purchaser or user of protective coatings has probably asked himself at one time or another—and just as probably he was unable to come up with any kind of a satisfactory answer. The question is not "What does a gallon of paint Cost?", for any paint salesman representing any one of the 1200 or more manufacturers in the United States can answer that question about any specific item in his line. However, that is not what the purchaser or user needs to know. The dollar sign on the price list is probably the least important item of those that determine the real "worth" of a gallon of paint.

Incidentally, the word "paint" is perhaps an undignified term to apply to an extremely complex product of the chemical industry. Paint manufacturing is no longer a simple process of dispersing white lead or zinc pigments in linseed oil. The chemistry of a modern industrial finish is just as complicated and just as fascinating as that governing the production of plastics, synthetic rubber or any of the thousands of products emanating from the coal tar or petroleum industries.

Product Coatings Mostly of Synthetic Origin

The great majority of modern industrial finishes are almost wholly of synthetic origin. Even the natural products, such as vegetable oils, have been taken apart molecule by molecule and put back together again in a fashion that suits the needs of the protective coatings technician better than the original substance produced by nature. Let us then give the product a name that carries the dignity it deserves

*Finishes Div'n., 57 State St., Newark.

by virtue of its scientific origin. The very least we can do is to call it a chemical or protective coating.

Your Dollar's Worth; Yardstick of Value

To get back to our subject then, how can you know that you are getting your dollars worth out of each drum of protective coating you buy? If the dollar sign on the invoice is not the yardstick, then what is? Is it the solids in the package? Is it the body or viscosity of the material? Yes, it is all of these and more too. The true criterion is, what is the cost to you of the material applied on your product in cents per square foot (or per unit, as the case may be) and, at that cost, does it provide the performance characteristics in service that your end product requires?

The next question is, how do you determine this? If you are a large corporation and can afford the cost of doing so, you can set up a laboratory and staff it with a chemist or two who can run comparative evaluations and tell you which coating to buy. If you are too small to afford such a luxury, you can farm out your testing to a commercial laboratory. If you do not wish to spend even this kind of money, then you should select as your source of supply a company that you know is reputable, one that has the necessary laboratory facilities and the "know-how" to determine the things you want to know about your particular chemical coating.

What are some of these things you will want to know? First of all, you will want to know what percent solids the coating contains. The solid ingredients determine how much film thickness you will get on your product per coat, and the film thickness, in turn, governs the physical performance of the coating in service. If coatings could be applied at 100% solids, it would, in most cases, be to your advantage to buy them that way.

Maximum Solids; Minimum Solvents

In order to achieve application, finishing materials must be in liquid form. This liquid state is obtained by dissolving the film-forming ingredients in solvents, and in these solutions, which we call vehicles, the pigments are dispersed. Solvents cost money and, unless you have a solvent recovery system (which represents a considerable capital investment) they eventually are completely lost to the atmosphere. Therefore it is to your advantage to use the least amount of solvent that yields the optimum application viscosity for your particular equipment.

In considering the question of solids, a word of caution is indicated. Some of the newer high polymer finishes, such as the vinyls, the Sarans, and finishes based on polystyrene or styrenated alkyds, are very much more viscous in solution than conventional finishes based on oleoresinous varnishes or alkyd resins, and must, of necessity, be diluted to a much lower solids content in order to achieve a practical application viscosity. Therefore, when considering the merits of two different materials, it is unscientific and unfair to weigh the solids and gallon cost of one against the other unless the materials under consideration are of the same

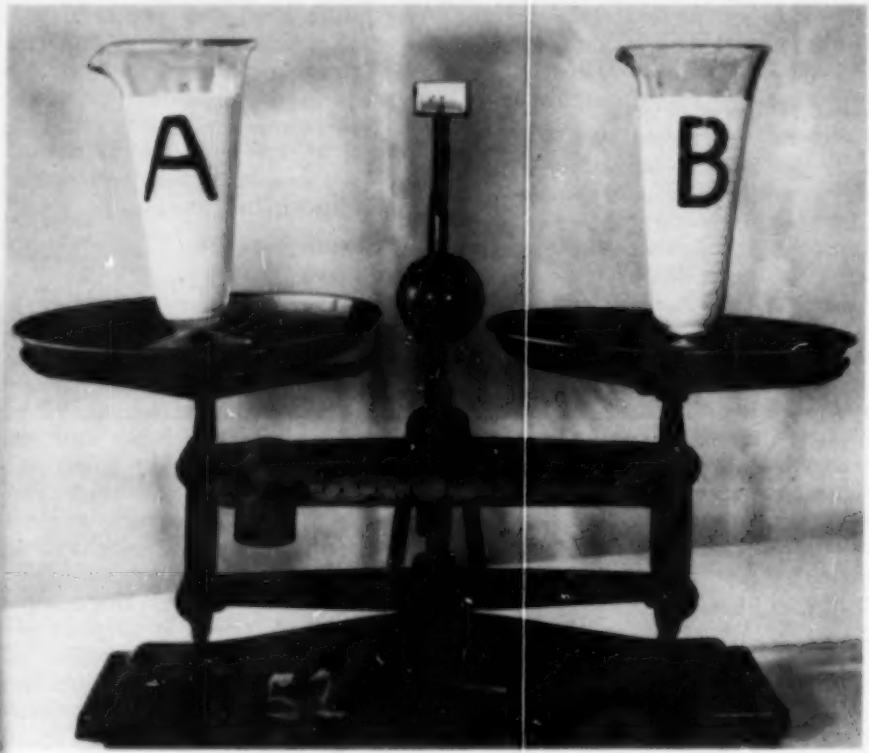

Fig. 1— Enamels A and B contain the same percent solids, as shown by the fact that equal volumes balance each other on the scale pan.

species. If you wish to avail yourself of the toughness, abrasion and chemical resistance of a vinyl type coating, then you must reconcile yourself to the fact that it is going to cost you more in solvent loss to apply it.

Type of Solids Is Important

Another word of caution about solids determination is in order. A determination of the percent solids in a given coating yields no information whatsoever as to whether or not they are the right solids. For example, in Fig. 1, two samples of a white enamel are shown which, if analyzed, would have exactly the same percentage of solids. Since solids, in general, govern the weight of a coating, we can show that these samples are of the same solids by placing equal volumes of them on a balance and observing that the weights are equal. If solids are the sole criterion of value, then one of these enamels is worth just as much as the other. However, when we take a film applicator and draw

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down wet films of equal thickness on a hiding power chart (as in Fig. 2) we see that Enamel A is inferior to Enamel B in opacity. Obviously, it will take considerably more of Enamel A to cover a given surface to complete hiding.

The reason for this difference in performance is that Enamel A is pigmented with a mixture of 80 parts of barium sulphate and 20 parts of titanium dioxide. Enamel B, on the other hand, is pigmented to the same degree with pure titanium dioxide. Barium sulphate, or "barytes" as it is called in the trade, is a heavy, low hiding power pigment which costs about 1¾ cents per pound. If it is solids you want, barytes is a good way to get solids at low cost. Titanium dioxide, on the other hand, has the highest opacity of any white pigment known. It costs about 21½ cents per pound. We could take the barytes out of Enamel A and put half of it back as titanium dioxide, lowering the solids accordingly, and we would still have a much better product from a mileage standpoint than Enamel A. If Enamels A and B cost the same and contain the same solids per gallon, but it takes X% more of A to cover a given surface, then which gallon is worth more. I think the answer is obvious.

Admittedly, Enamel A is a completely illogical formulation designed especially for this demonstration, and it is unlikely that one

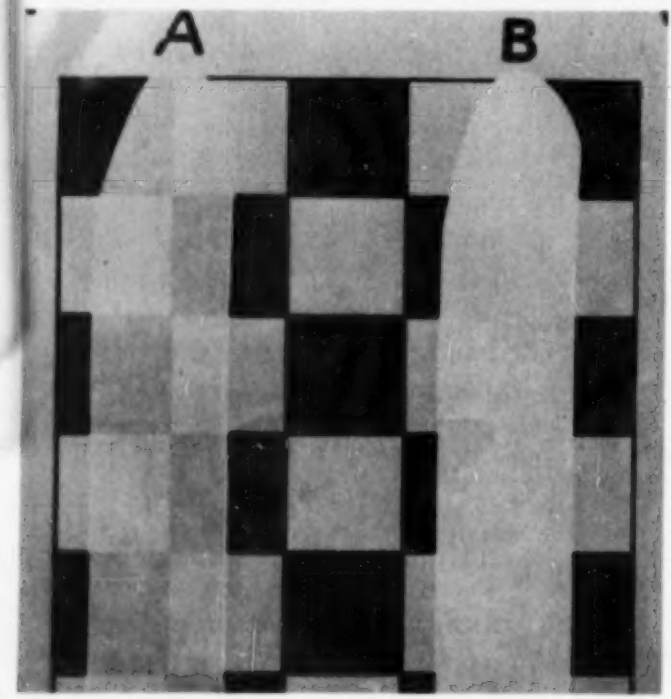

Fig. 2—When the enamels are drawn down at equal film thickness on black and white testing squares, Enamel B shows up with much better hiding power than Enamel A.

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Here are three Sundstrand Sanders that will handle countless sanding jobs on wood, metal or plastics . . . on production or maintenance work. All three have straight line reciprocation, making it easy to follow grain structure and effecting superior finish. Vibration of all three sanders is reduced and operator's fatigue minimized.

Before buying any portable sander, investigate the savings possibilities of these Sundstrand Portable Pneumatic Sanders.

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Model 100

A new Sundstrand Single Pad Sander which can be handled easily by women operators or in small and confining areas. Has straight line variable pad reciprocation ranging from 1,500 to 3,000 oscillations per minute. Pad movement is counterbalanced to eliminate vibration. Can be guided with practically no effort.

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Model 1000 and Model 4000

Here's a light, fast, easy to handle two pad sander, ideal for wood, metal, plastic or composition. Pads reciprocate in opposed directions at 3,000 oscillations per minute . . . has abrasive area two to three times larger than hand blocks. Operates on 65 to 90 lbs. air pressure . . . applicable to both wet or dry sanding. Model 1000 weighs less than 6 lbs. and has stroke length of 1/2 inch. Model 4000 has 11/16" stroke and weighs approximately 9 lbs.

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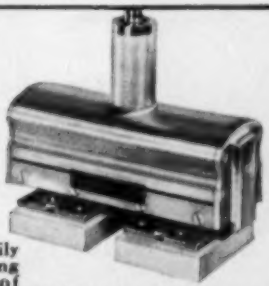

Designed primarily for pumice rubbing and sanding of large, flat surfaces. This sander operates at a speed of 1,100 oscillations per minute on an air pressure of 80 lbs. The machine weight of approximately 30 lbs. supplies necessary pressure for fast, uniform sanding or rubbing.

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would find such a great difference between two competitive products. However, it serves to show that knowledge of the solids content of a given material is of no value unless you also know that those solids will impart something of value to the film—that is, hiding, build or durability.

The Importance of Viscosity

The next question is, "What is the importance of viscosity?" Viscosity, in general, is proportional to the solids content. That is to say, given a certain combination of ingredients, the viscosity will increase in proportion to the amount of solids present. However, as pointed out previously, some types of solids produce high viscosity solutions. Furthermore, it is a very simple matter to "body up" a coating, if the customer requests it, without raising the solids one iota.

In Fig. 3, two nitrocellulose lacquers, C and D, are shown. If you were to judge solely by the viscosity you might select the more viscous one, Lacquer C, as a much better buy. Actually, however, the heavier

Fig. 3—Lacquer C is much heavier in body than Lacquer D, as shown by the way the lacquers flow off the spatulas, but Lacquer D contains more solids, requiring less of it to balance Lacquer C on the scale pans.

mind if we talk about your operation?

Yes, let's talk about your operation: let's talk about increased production with VELVA-TON, the synthetic finish that dries with the speed of lacquer, 40% faster. Here's the answer to your floor space problems because VELVA-TON FASTUFF air dries for handling in only 15 minutes, for packing in 2 hours. You'll move your product through faster . . . with a smooth, high-gloss finish that looks better too.

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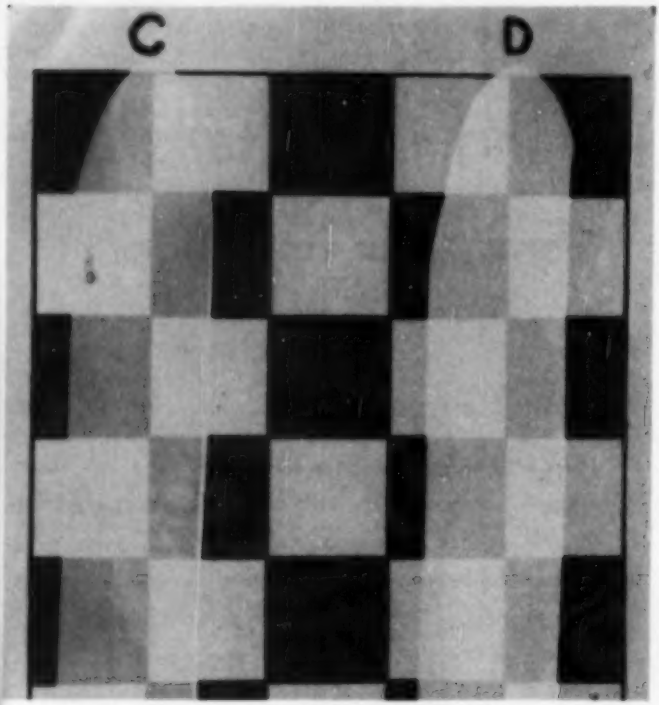

Fig. 4—When the lacquers are drawn down at equal thickness on black and white testing squares, Lacquer D, although much thinner in body, has much more hiding power and will, therefore, give more mileage than Lacquer C.

material, in terms of viscosity, is light by far in terms of solids and would deposit a thin, low build, low gloss and low hiding film. We find that it takes a much smaller volume of Lacquer D to balance Lacquer C in weight, showing that D has the higher solids. In Fig. 4, a film drawn down on the hiding power chart shows that Lacquer D also has the best hiding and will give better mileage even though it is much thinner in body.

Lacquer C could be sold for about half the price of Lacquer D but probably it wouldn't be. By the time you had paid for the reducer that would be required to bring it to application viscosity and had paid for the labor required to apply multiple coats, the lacquer would cost you a fortune even if you did get it for half the price. The moral is, do not turn down a material because it is thin in body unless you also know that it is low in solids. It is much more reasonable to reject a high viscosity material on the grounds that it will cost you so much more for reducing solvent.

High Reduction an Economical Myth

Many persons still follow the old theory that a high viscosity material that will take a large reduction with thinner to achieve spraying viscosity is the one to buy. This "cost at the gun" business is strictly the bunk. You purchase and ap-

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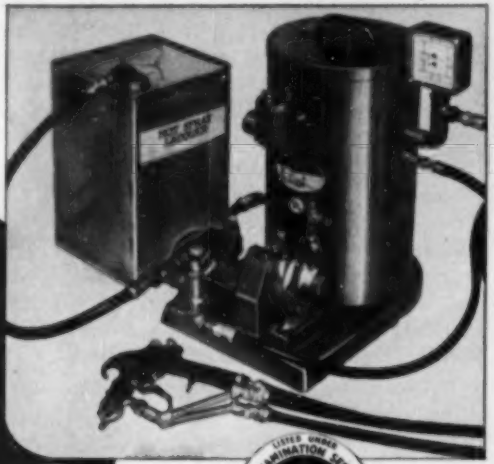

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ply a protective coating for one of three reasons. You wish to 1) beautify your product and increase its sales appeal; 2) protect it against the ravages of corrosion; or 3) to impart to it some function, such as high light reflectance or electrical insulation. In any case, the performance of the coating, be it protective, decorative or functional, is dependent on film thickness. Cutting the daylights out of a high viscosity coating to achieve a low "cost at the gun" is certainly not conducive to good film build or low unit cost.

This statement can be reduced to simple mathematics. Suppose, for example, you are offered two enamels at $3.00 per gallon. Both of them weigh 10-lbs. per gallon and both of them contain 60% solids. Each gallon will then contain 6-lbs. of film-forming material which you can apply to your product. One of them is ready for use as received. However, the salesman for the other coating, a Mr. X, says: "Mine is the product to buy because it reduces 50% with a 40-cent (per gallon) reducer, thus reducing the cost at the gun."

Let us take a look at the economics of this statement. In the case of the ready-to-use material, you can apply 6-lbs. of solids for $3.00 plus the labor cost of putting a gallon of material through the spray gun. In the other case, it costs you $3.00 for the unreduced material, plus 20 cents for a half-gallon of reducer, plus the labor cost of adding the reducer to the tank, thoroughly mixing it in, and putting a gallon and a half of it through the spray gun—and you still deposited only 6-lbs. of solids. Disregarding the mixing cost and assuming the spraying cost to be 40 cents per gallon, the cost per pound of solids deposited is, in the first case, the sum of $3.00 plus 40 cents—this divided by six, which equals $0.567. In the second case, the cost per pound of solids deposited would be the sum of $3.00 plus 20 cents plus 60 cents—this divided by six, which equals $0.633, an increase of 6.6 cents, or 11.6%.

If you do not get 11.6% more finished units, then the reduced coating is costing you more per finished unit. If you do get 11.6% more units, then you are getting 11.6% less material on each unit and correspondingly less protection and film build. If you get more than 11.6% additional units, then you sacrifice correspondingly more protection and film build. Thus, whether or not you should buy the coating from Mr. X that takes a 50% reduction depends on whether you are interested in a quality finish or a low cost one—and Mr. X's finish is not a low cost one unless you put less of it on.

In general, your interest in viscosity should be confined to: 1) knowing that it is proper for your particular application equipment, and 2) knowing that it is within reasonable manufacturing limits of being the same from batch to batch. Do not turn down a product just because its viscosity is low. If you know that the proper amount of the right kind of solids is there, the only worry you need have is whether or not the pigment will settle out in the package and whether or not the material will sag when

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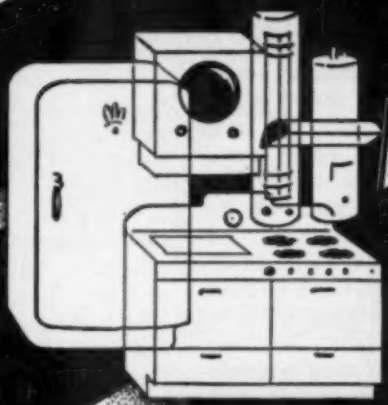

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applied in a normal manner. The chances are that the lower viscosity material will atomize better and flow better, with the result that the finished piece will be more free of orange peel and will yield a smoother, higher gloss film.

Application Properties Are Important

Another thing you will want to know is how your finishing people will like to handle the material. A good finisher can usually tell from a quart sample how a given material will work on the production line. However, the proof of the pudding is in the eating, and ultimately, everything else being in order, you should purchase enough material for a run of several hours.

Frequently spray men will say they do not like the way a material handles—not because it handles poorly, but because it handles differently. A few hours' experience with it may change their whole attitude, and they may prefer the new material to the old one when they change back. Also, a run of several hours will serve to give you some sort of cost per unit picture which you cannot possibly get from a quart sample.

Cost Per Unit Depends On Several Things

The cost per unit depends not only on the cost per gallon and the percent of solids, but also on the way the material handles. A high viscosity material with poor flow will atomize poorly and, in order to get an acceptable looking job, the spray man will have to open up his gun to wet down the surface, which may result in more material being used. In any event, cost comparisons should be made on the basis of equal dry film thickness, again assuming that you are dealing with similar species.

Obviously it would be unfair to report that a given material was 25% low in mileage if it had been applied at a 25% greater film thickness. Either you should interpolate your cost figures to the proper film thickness, or you should rerun the material at the proper film thickness. Of course, if you need 25% extra film thickness to produce a satisfactory gloss and build, that is something else again. A number of commercial instruments are available for measuring both wet and dry film thickness, and no finishing department should be without one. Film thickness control is important in maintaining standard costs as well as in assuring long trouble-free film life.

Performance of Finish On End Product

Another thing you will want to know about your protective coating is how it will perform under service in the field. These requirements vary widely from one industry to another, and each buyer should operate under a set of performance specifications that will insure the best field performance for this particular product. For example, if you make air-conditioning equipment, you have an interior corrosion problem, and your specifications include a salt fog test and a humidity test to determine the degree of corrosion protection a prospective coating affords. If you make typewriters or business machines, your specification should include a test

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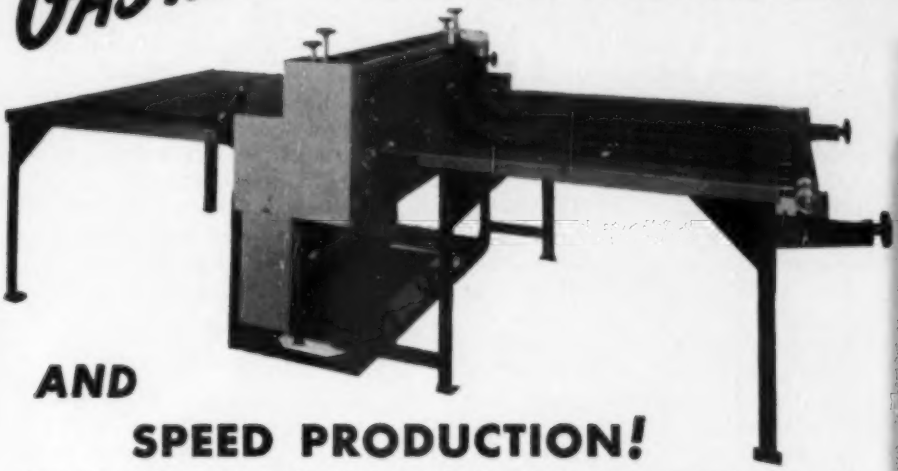

AND SPEED PRODUCTION!

The benefits to be gained by using the Rollacoat method of applying finishes and protective coatings, to practically any type of flat materials, are three-fold. In the first place coating speeds are greatly increased over those of any other method and are governed largely by how fast the coated materials can be handled or dried. Secondly, the coverage per sq. ft. per gallon is usually at least 50% greater, the only loss being the paint removed from the rolls at the end of a run. In the third place you obtain finer quality of finish due to accurate control of thickness and evenness of coat.

The applications for Rollacoating are numerous. Top, bottom and sides of practically any type of flat material, whether sheet or coil stock, can be coated by a single pass through the machine.

Special equipment for cleaning, treating, coating, drying, and rewinding strip in continuous process can be constructed to special order.

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to determine abrasion resistance and resistance to perspiration, for nothing will destroy adhesion and general film integrity faster than its becoming saturated with human perspiration, unless the coating is especially built to resist it.

If you make refrigerators, the finish must be gleaming white, and it must stay that way under all conditions of use. It must also resist staining from all sorts of fruits, condiments, oils and fats. It must not soften or blister under the influence of high humidity that frequently exists in the kitchen. It must also be flexible enough to withstand impact. If you make washing machines, your finish must be resistant to abrasion and hot soap solutions. The variety of things a protective coating film is expected to do is really amazing. One customer even demanded resistance to staining by seaweed.

Specifications Should be Solely for Performance

Note particularly that the specification should be of the performance type. It should be drawn up by your engineering or technical department or by someone in the organization who has intimate technical knowledge of how your product should perform in service, and how it has failed to do so in the past, and it should contain detailed information on what the coating should do, but not on what it should contain.

There are a number of reasons for this. The most important reason is that a material specification automatically locks the door against new developments that may be much more ideally suited to your product than the material you are using. For example, a year or two ago we were supplying a white melamine-alkyd enamel for washing machine agitators. Today we have a much harder finish that is more resistant to alkalies and abrasion. If you make washing machine agitators and specify a melamine-alkyd finish, we are duty bound to supply it, although we know it is not the best thing available. Of course, we can call it to your attention and suggest the change, but our experience has been that trying to change a specification is like crying for the moon.

Points to Include in Performance Specifications

Another reason for not writing a material specification is that no one can hope to be an expert in a wide variety of fields. To be successful, one must concentrate in his chosen field and know everything he possibly can about it. The days are just not long enough nor is the human constitution durable enough to know the other fellow's field too. Thus your best hope of obtaining the most suitable protective coating for your product lies in your going to an alert, reputable manufacturer of protective coatings and presenting your problem to him in minute detail—and this is where a performance specification will be of great help. Here is some of the information the specification should contain:

1) Color (supply wet sample or panel).

2) Gloss (express as 60° Glossmeter reading).

3) Texture (wrinkle, spatter, crackle, crystal, etc.).

Here's a tip if you dip . . .

P&L Dipping Enamel does a smooth job on pieces as large as filing cabinets. Non-silking; no heavy fatty edges.

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4) Application equipment, (If sprayed, give details of equipment, including type of gun, tip, pressures used, etc.).

5) Curing cycle. Including type of oven; that is, gas, direct or idirect fired; electric, infra-red, etc. Supply a chart of temperature curve if possible).

6) Describe the article to be finished, giving particular emphasis to parts which are potential sources of trouble.

7) How is the surface prepared for the finishing operation?

A) Solvent wiping.
B) Vapor degreasing.
C) Alkali cleaning.
D) Bonderizing, or equivalent chemical treatments.

8) Outline in detail the performance characteristics which you desire in a finish, that is, salt spray, humidity, perspiration, chemical or abrasion resistance, reflectivity, electrical properties, exterior durability, etc. Describe how you will test for these properties.

9) Is a primer used, and if so, for what purpose?

A) Adhesion.
B) Build.
C) Corrosion resistance.

Omit in Specifications Anything Not Needed

Do not, however, include in your specification any properties which are really unimportant for your particular end use. Most industrial finishes contain a blend of ingredients, each of which is designed to impart a certain property, and the final product is generally the best compromise that can be made of physical properties that are the antithesis of each other. For example, if you want glass hardness, it is usually obtained at the expense of flexibility. An extremely flat finish is usually obtained at the expense of marproofness. Extreme corrosion resistance is usually obtained at the expense of color.

If you are making wooden picture frames, you might want corrosion resistance against termites, but certainly not against salt fog.

To introduce a salt fog test might make the specification look professional but it might also require you to sacrifice a substantial amount of some other property that is really important to a picture frame, such as its ability to be non-tarnishing. Or, for a more practical example, if you are manufacturing machine tools, do not put a conical mandrel test in your specification. "But", you say, "our machine tools have to stand rough usage, banging with heavy tools, etc.". Of course they do, but did you ever try to bend a 4-in. thick casting over a conical mandrel? Furthermore, a conical mandrel measures the ability of a film to withstand elongation, not impact. The surface of a piece of 20-gauge steel bent over a ¼-in. diameter will elongate 150% to 200%.

If you want high impact resistance on a rigid surface, toughness and adhesion are much more important than elongation, and if you want to measure impact resistance, there is instrumentation available to do it. The nearest hardware store will sell you a hammer at a very reasonable price. Or, if you want to be very scientific about it, you can buy a gadget that will cause a known weight to fall on a ½-in. steel ball in contact with the

THERE IS NO SUBSTITUTE FOR A KOCH-DeBURGH FINISHING SYSTEM

Whether your production rate is large or small, you share the same proportionate savings in labor, improvements of your product and increases in production.

Only KOCH-DeBURGH is a complete, even-powered system that solves the most costly finishing problems and converts your plant into a marvel of efficiency. Let a KOCH finishing expert call on you—no obligation!

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GEORGE KOCH SONS, INC.
EVANSVILLE, INDIANA

The Modern Office *Needs*

PITTSBURGH INDUSTRIAL FINISHES

to make office equipment look better . . . last longer

FOR more than ninety years, Pittsburgh has given valuable assistance to users of industrial paints in solving finishing problems.

● **For Instance,** Pittsburgh finishes help make office equipment and appliances better-looking and longer-lasting—typewriters, sound-recording and business machines, filing cabinets, water coolers, desks, chairs, desk lamps and metal receptacles of many kinds.

● **By working with** the technical and engineering staffs of the makers of these products, Pittsburgh has produced high-grade industrial finishes to meet any number of performance standards. Among these are a wide range of Lacquers for metal and wood, an equally wide variety of Industrial Enamels, to meet almost every general finishing requirement, and a series of Lavax Wrinkle Finishes for wood, paper, steel, metal castings, aluminum, plastics, etc.

● **These coatings** provide exceptional adhesion, toughness and durability. Because they are easy to apply and dry quickly, they speed production. These fine finishes add to eye appeal and also keep office equipment looking better for a longer period.

● **This broad experience** in providing tailor-made coatings of all needs to meet hard and fast performance standards can be helpful to you. Call on us for facts and figures.

PITTSBURGH PLATE GLASS COMPANY
Industrial Paint Division, Pittsburgh, Pa.
Factories: Milwaukee, Wis.; Newark, N. J.; Springdale, Pa.; Houston, Texas; Los Angeles, Calif.; Portland, Ore. Ditzler Color Division, Detroit, Mich. The Thresher Paint & Varnish Co., Dayton, Ohio. Forbes Finishes Division, Cleveland, Ohio. M. B. Suydam Division, Pittsburgh, Pa.

PPG **PITTSBURGH** *Industrial* **FINISHES**

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

coated surface, and you can measure the force required to fracture the film by noting the height from which the weight has to be dropped and express the result in inch-pounds.

The thing I am leading up to is that physical tests do not mean a thing unless you know how to interpret them in terms of what they mean in actual performance of the product. It takes a person skilled in the art of formulating protective coatings and testing them to make any sense out of a mess of physical data. Unless you have such a man in your organization, you should contact a supplier who has the facilities and the "know-how" and ask him to help you write your specification and set up your control tests.

Contacts With Salesmen; Please be Fair

And now a word about samples. When a protective coatings salesman enters your office, you have to decide whether or not you wish to buy something from him. If you elect to test or try out what he has to offer it may be because he has sold you on the idea that he sells a better product, or he can show you a cost saving, or he can give you quicker deliveries and better technical service. Or perhaps you simply like the color of his necktie. For the purpose of this discussion, the reason is unimportant.

If you really want to give him some business, give him every opportunity to get the information he needs, so that his laboratory and factory can do a creditable job for you. Let him talk to the foreman of your finishing shop. Let him see your finishing equipment and drying ovens. Let him talk to your chemists and engineers. Let him talk to your stylists. From all of them he can get information that will be most helpful in enabling his company to select the very best finish for the job.

If you do not wish to buy from him, tell him so; and, if you can, tell him the reason. Do not let him send in a sample just because he is a nice fellow and took the trouble to call. To do so is not doing the salesman or his company a favor. It raises his hopes unjustifiably and when the sample remains untested for weeks or months, and he spends more of your time and his in coming back for follow-up reports, the ultimate disappointment is worse than if he had received a negative answer in the first place. Furthermore, he has to justify that sample to his company, and the cost of making it was probably charged against his sales quota. "A couple of bucks", you say? Don't you believe it. Whether the sample was a pint, a quart or a gallon, it probably cost a minimum of $35.00.

The Sample Costs More Than You Think

Modern industrial laboratories are expensive to operate. The personnel is expensive, and so is the equipment. The cost of the sample is not just that of the material and the salary of the chemist who made it. It is also the amortization on many thousands of dollars' worth of high priced equipment, the cost of power, light, heat, taxes, etc.; the cost of stenographic and maintenance personnel, librarians, technical service men, administration and many other things. [*To p. 46*]

Use INFRA-RED *Evenray* for

Substantial Savings

on Finish Baking

• Over 6,000 Plants Cut Time and Costs by Using Fostoria Evenray Systems

Here is real proof of manufacturing economy with a Fostoria Infra-red Evenray System: Before using Evenray, the Friden Calculating Machine Co., of San Leandro, Calif., operated their 3 convection ovens 20 hours per day, 5 days a week to obtain required finish baking production. Now, a 44 ft. Evenray oven with connected load of 90 KW turns out more production of better quality in only 7 hours per week — a savings of 93 hours. The weekly power bill for this Evenray System is only $12.60, based on a 2c per KW rate, which is extremely low compared to their previous operating cost with convection ovens.

The substantial cost savings with the Evenray System at Friden Calculating Machine Co., pictured above, is typical of the results obtained with Fostoria equipment by over 6,000 plants. You can save, too. A Fostoria engineer will gladly analyze and forecast accurately the benefits of Infra-red for your specific use.

—GET THE FACTS

Technical information and descriptive literature are available on request. WRITE NOW. Learn how EVENRAY can lower your production costs.

THE FOSTORIA PRESSED STEEL CORP.
FOSTORIA, OHIO
Oldest and Largest Manufacturers of Industrial Infra-red Ovens

FOR BAKING • DRYING • PREHEATING • DEHYDRATING

Trade Mark Reg. U. S. Pat. Off.

This is the price that progressive manufacturers have to pay to be progressive. This is what it costs to be ready to give you excellent products and prompt effective service. This is the price that paint manufacturers have to pay to establish and maintain their reputation. So, the more time they spend on wasted samples, the less time they have to spend on progress.

Performance Tests Give Basis for Real Value

We started by asking the question, "What is a gallon of paint worth?" I think you will agree that the answer is not on the price tag, nor can you tell by lifting the bucket to see how heavy it is, or by observing the flow of the material from a stick or a spatula to determine its consistency. While these are all contributory physical properties, they might contribute in the wrong direction, as shown by the demonstrations.

Thus we must say that the coating that will give you the best appearance, the best protection and the optimum of physical properties at the lowest cost per unit is worth X dollars until something comes along that will do the job better or that will do it just as well for less. And how do you solve the equation for the value of X? Remember your algebra? When you want to solve a problem containing two unknowns you set up a pair of simultaneous equations in which you place one of the unknowns on an equal basis in each equation, canceling out like terms and solving the remainder.

The method works equally well in the problem at hand. Place coating X and coating Y under test in a set of simultaneous equations. In other words, run them under identical conditions. Do not try to remember how coating X performed the last time you ran it, even though the last time was only yesterday or even this morning. Your air pressures, oven temperatures, humidity conditions, surface preparation, or any one of a dozen other things may be different this afternoon, which introduces another variable, and the equations are no longer simultaneous.

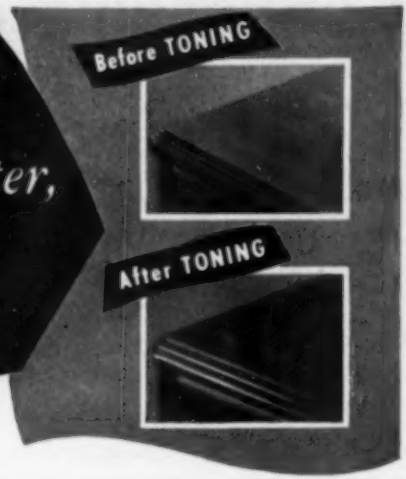
Set up your equations according to your performance specification and equate like properties against each other, canceling out those that are equal. The terms that are left will be the pluses and minuses that determine the values of X and Y. If you need additional data to solve the problem and cannot get it yourself, ask the suppliers for help.

And finally, when the answers are all in, do not let a few cents a gallon stand between you and a supplier who you know is best equipped to handle your business from a standpoint of technical "know-how", production and service facilities. It costs him something (money and many other things too) to be in that position, and that few cents a gallon is the premium you pay on one of the best insurance policies you can buy.

This article is revised from an address of the same title, presented by the author before The Purchasing Agents Association of Connecticut, at Hartford, Conn., in May.

The latest German patent applications in the field of synthetic resins are now offered in translated form by Research Information Service, 509 Fifth Ave., New York 17, N. Y., in their Special Research Bulletin No. 47.

TONE *polish* gives you a brighter, harder finish at less cost!*



Look at the difference in the Toned and un-Toned table in the illustration. The higher gloss, richer sheen, greater depth gives the Toned table more sales appeal. You too, can give your product that extra sales appeal by using TONE Silicone-Base Polish. And you cut final finishing costs too! TONE is easy, quick to apply and is particularly adaptable to conveyor line production. Just spray or spread it on — and wipe it off! *No hard rubbing is required.* TONE retains its clarity! Use TONE Silicone-Base Polish . . . you'll sell more . . . cut final finishing costs . . . INCREASE PROFITS

* *Silicone-Base*

Make the TONE-*test*

Compare TONE with the polish you're now using. Prove to yourself that it gives your furniture a better, more saleable look. Write today, or use the coupon, for your FREE SAMPLE.

Yes, **I'd like to try TONE at YOUR EXPENSE. Send my FREE SAMPLE to:**

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TONE *is used and endorsed by leading Grand Rapids furniture manufacturers.*

Conveyorized Finishing of

TO GET color uniformity in mass production finishing of steel kitchen cabinets requires more than careful formulation and preparation of the finishing materials. Formulation is always the foundation on which the finish is built, therefore it should be really good and consistently uniform. Other factors that effect color are film thickness, oven temperature, quantity of fresh air injected into the oven, and cleanliness of the air in spray rooms and ovens.

In this article I will explain the step-by-step procedure to show how Goodyear Aircraft Corp. accomplishes uniformity of color year after year. Why is it necessary in the production of kitchen cabinets, to have color uniformity year after year? Because customers often buy several units and then, in the course of several months, they go back and buy additional units which are installed close to the original units. Any difference in color would be noticeable—and very objectionable.

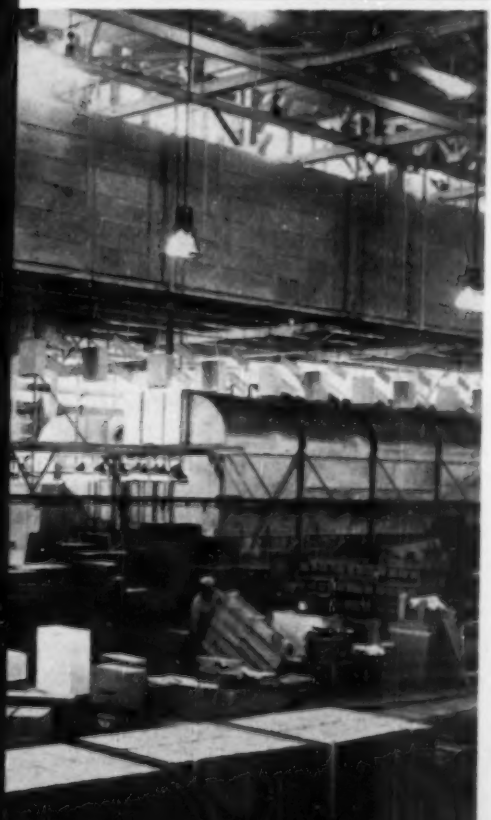
Metal Kitchen Cabinets . . .

By J. F. Snider and A. R. Nasrallah
Material & Process Division
The Goodyear Aircraft Corporation

Metal cleaning; rust proofing; spraying hot synthetic enamel in pressurized finishing rooms; baking enamel; all operations fully conveyorized. How color uniformity is maintained.

Preparation of the metal surface to receive finish coats is a matter of first consideration. Although these cabinets are used entirely inside the house, they are installed in kitchens where the humidity is often very high due to steam from cooking, and from the dishwasher, therefore we rustproof all steel surfaces to protect them against rust and to provide improved paint adhesion.

Cabinet parts are suspended from an overhead conveyor with hooks spaced on 40-in. centers. The conveyor, operating through a variable-speed drive at 18-ft. per minute, carries the cabinet through a 5-stage metal washer. In the first stage all metal surfaces are sprayed with an alkali cleaning solution at 160°F. A hot water rinse at the same temperature follows. In the third stage a rustproofing solution is sprayed on at 150°F.; this is followed by a cold water rinse. In the last stage a chromic-phosphoric solution is sprayed at a temperature of 160°F. Next the parts pass through a dry-off oven (400°F.) to evaporate all moisture from the surface and seams in the metal.



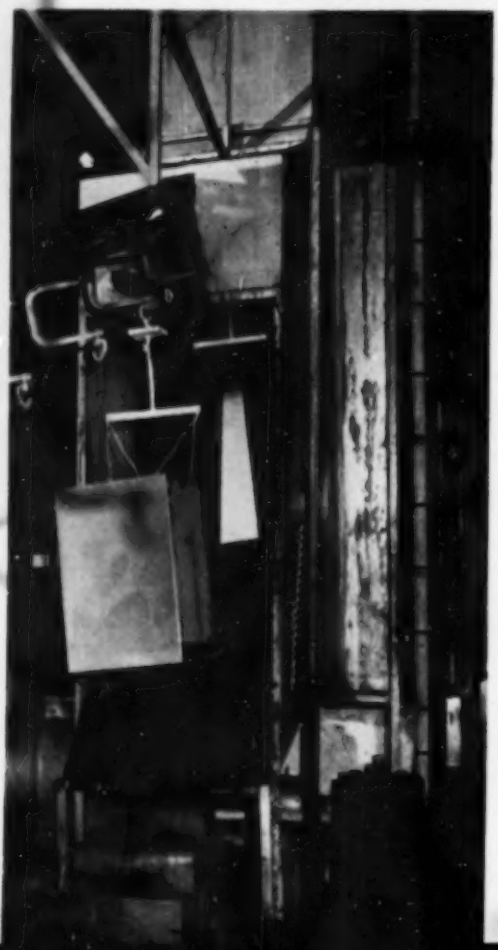
Equipment and Controls Promote Color Uniformity

Now here is where color uniformity starts. The quality control laboratory tests all cleaning solutions as well as all finishing materials. We have correctly engineered equipment and definite rules of procedure from which there is no

deviation. You could come in at any time on any shift and find the same methods and the same conditions prevailing.

Definite employes are assigned to definite tasks. The control of air pressure, fresh air intake, oven temperature, etc., are not left to a foreman who may be busy with supervisory matters, or to a spray operator, or to any employe who may find some time to watch after these things, but to a control man whose job it is to see that established standards are maintained.

Parts for steel cabinets pass through this 5-stage metal washer to remove grease and dirt smudges, and to rustproof and etch the metal surfaces before they are painted.



Pressurized Spray Rooms And Tunnels to Oven

We have two pressurized spray rooms, each of which contains five water-curtain spray booths. The two spray rooms are connected by an enclosed metal tunnel, and the second spray room is connected to the overhead oven by a similar metal tunnel. The tunnels are pressurized the same as the spray rooms so that from the time paint is applied to the surface, the wet painted surfaces of parts are protected against dust and flying particles until the finish is baked hard.

Even the matter of air pressure is not left to man's judgment. We inject 50,000 cubic feet of filtered air per minute into the spray rooms and tunnels. The fans exhaust 40,000-c.f.m., so that there is an excess of 10,000-c.f.m. air in the pressurized areas. The maximum static pressure is $\frac{5}{8}$-in. as registered on a water monometer installed on the inside wall of the second spray room. The control man checks the pressure regularly twice a week. If it exceeds the maximum, the replaceable filters are changed to bring the pressure back to normal. We generally replace about 25% of the filters at a time, and this accomplishes desired results.

A film thickness of 1.6-mils is applied in one coat. We use a white synthetic enamel at a viscosity of 38-seconds at 77°F., as measured in a No. 2 Zahn cup. The enamel is

(Continued on page 54)

ONE MAN OPERATION with BLAKESLEE METAL PARTS WASHERS

BLAKESLEE SOLVENT VAPOR DEGREASERS
—economical, efficient—
USE LESS SOLVENT

BLACOSOLV
Stabilized Degreasing Solvent — one price, one solvent *for all metals*

Blakeslee's new washer saves labor, is economical

Just one man can keep the production line going with this time saving metal parts washer. Turn table operation permits loading and unloading in one easy pivot movement. One revolution of the washer turn table and parts come out sparkling clean for a better finishing job with fewer rejects. Blakeslee washers are designed for every type and size of plant operation. Write for the cooperative services of our engineer-trained sales representatives.

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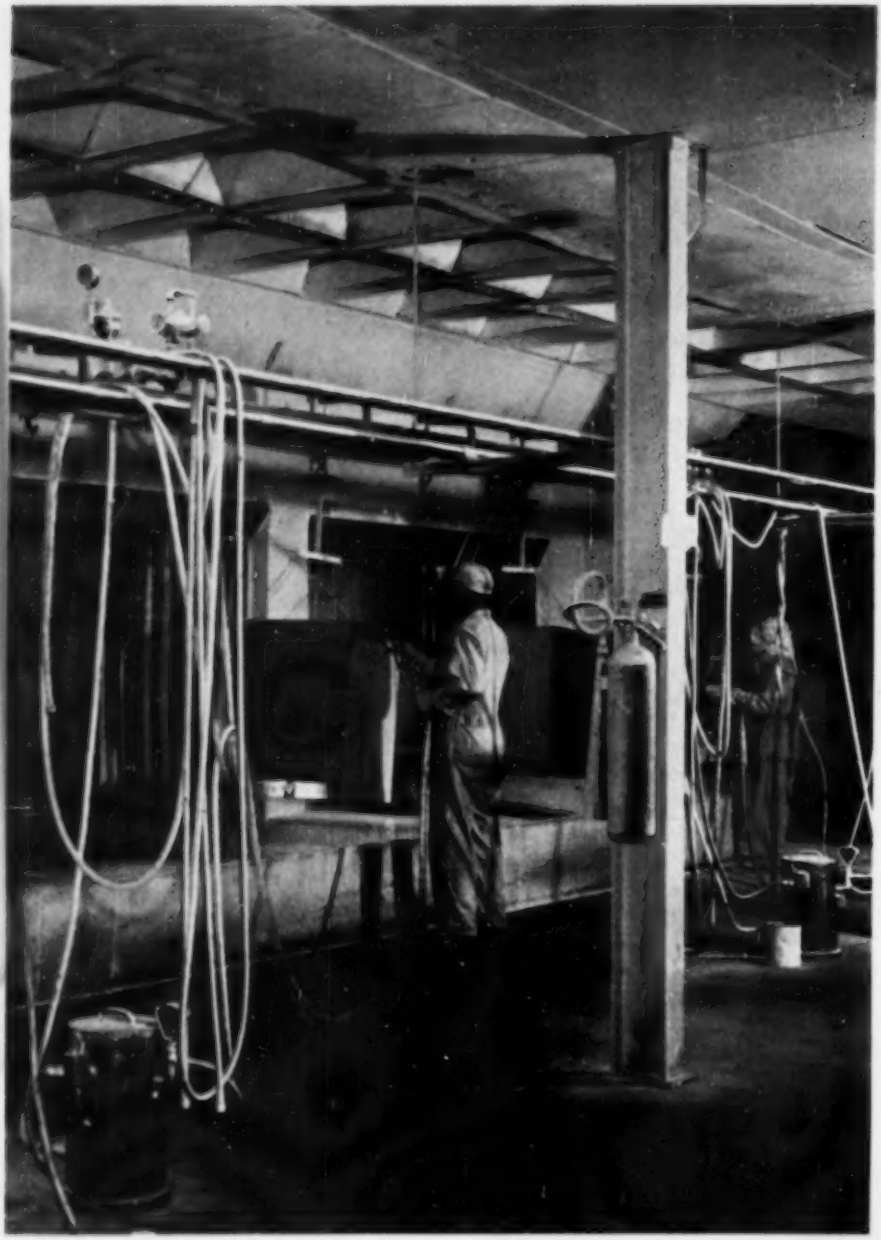
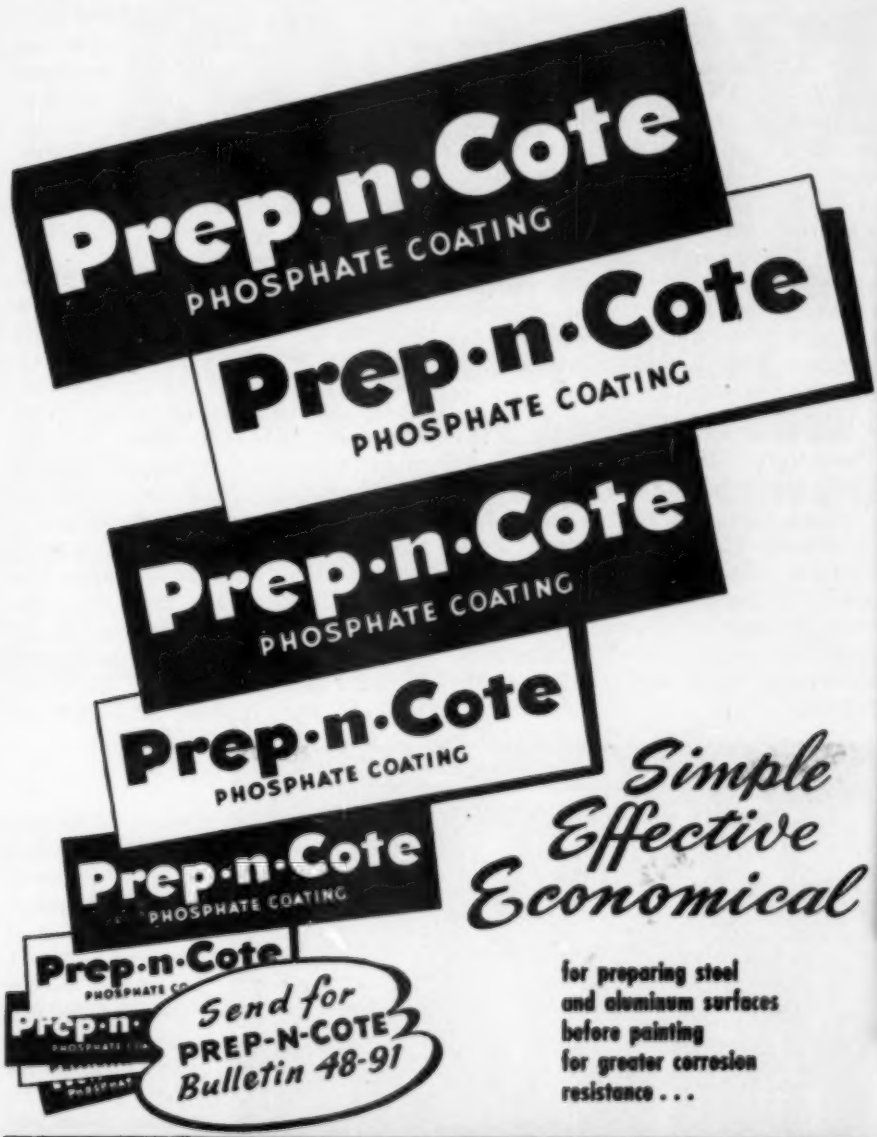


This view shows only a small part of one pressurized spray room. Paint from the circulating system passes through approved paint heaters before it is sprayed on the metal cabinets.

(Continued on page 54)



NEILSON CHEMICAL CO.

2682 Tecumseh Rd.
Windsor, Ont.

6562 Benson St., Detroit 7, Mich.

3411 Union Pacific Ave.
Los Angeles 23, Calif.

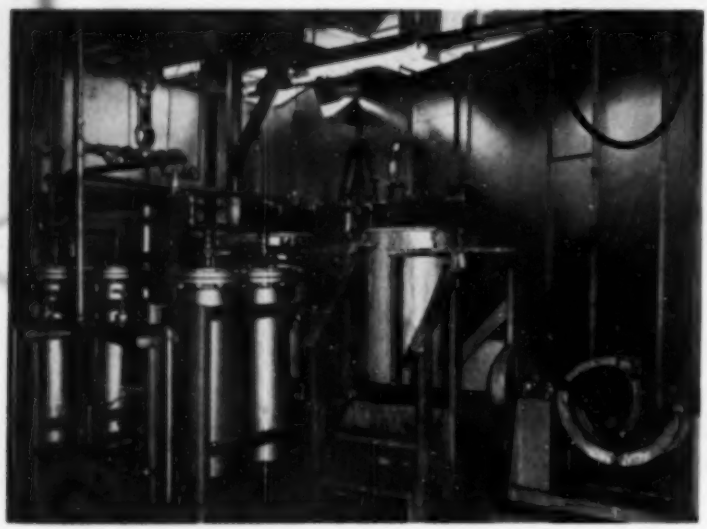
heated in a thermostatically controlled paint heater to 190°F. The heat loss from the heater to the gun is about 65°F., so the enamel is sprayed at approximately 120° to 125°F., using an atomizing pressure of 65-lbs., and fluid pressure of 25-lbs. Enamel is piped through a central recirculating system from a 300-gallon supply tank. Outgoing pressure is 30-lbs. and the return pressure is 10-lbs. The enamel, thinned to proper viscosity, is pumped from a 300-gallon mixing tank to the supply tank.

Paint Heaters; Uniform Viscosity; Film Thickness

Viscosity is one of the most important variables that affects film thickness, and in turn color uniformity. Paint heaters contribute much to the control and stabilization of viscosity, hence they are most important to maintaining film thickness, color and surface uniformity.

After parts are coated they pass through the enclosed, pressurized metal tunnel up to the indirect-gas-fired oven where the finish is baked for 30 minutes at 300°F. About five minutes flash (air drying) time is allowed before the parts enter the oven. However this travel occurs in the pressurized tunnel.

Oven air is made up of 40% fresh air passed over gas heaters and through replaceable filters, and 60% recirculated air. The oven is pressurized to equalize the air pressure in the tunnel connecting the spray room and the oven. This is done to form an air lock to prevent cool air from the tunnel from entering the oven. The strato-calm point will move up and down depending upon the relative humidity, hence the balance of pressure must be carefully maintained. Likewise the intake of fresh air must be controlled in order to maintain color uniformity. If the volume of fresh air



"Heart" of the paint circulating system. Paint is mixed in (300-gallon) tank at right; then it is pumped into the supply tank through filters and into the piping system which supplies spray booths. A device for rotating drums end over end appears at extreme right.

(Continued on page 58)

From SHELL CHEMICAL

ISOPROPYL ALCOHOL

An increasingly useful industrial alcohol for many pharmaceutical, surface coating and extractive uses

Highest quality . . .

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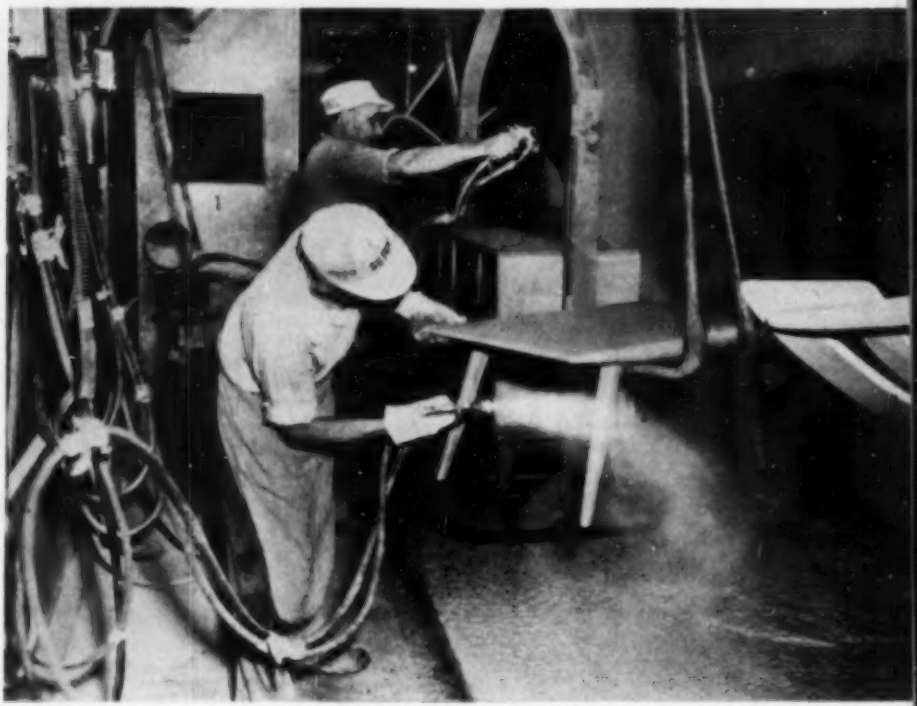

MODERN—FROM START TO FINISH! Du Pont DULUX helps furniture manufacturers make the most of up-to-date production-line methods. With DULUX, this two-man spray booth can coat over 1,000 pieces of furniture in a normal eight-hour day.

GLAMOUR FOR A WORKHORSE! It takes a rugged finish to ride the rails year after year. That's why 85% of America's leading railways use DUCO lacquer and DULUX enamel on their locomotives, passenger coaches, etc. These sturdy Du Pont finishes keep their gloss and color despite exposure to smoke, fumes, cinders, hard knocks and weathering.

MAN-MADE SANDSTORMS MAKE PAINT TELL ALL! That's how Du Pont paint chemists determine the ability of a new finish to take abrasion and wear. Finished test panels are exposed to a continuous blast of finely ground carborundum. The time it takes for the gritty blast to eat through the paint film measures the resistance of the new formula.

A BIG FUTURE FOR FURNITURE IN A MATTER OF SECONDS

DULUX for Furniture—typical of the 12,000 Du Pont finish formulas working for industry today

• When furniture manufacturers first heard about DULUX for Furniture, it sounded almost too good to be true. This new top-quality Du Pont finish made it possible for many manufacturers to cut top-coat costs by 30%, application time by 50%.

Today, the rich glowing sheen of Du Pont DULUX protects and beautifies millions of pieces of furniture at low cost. Moreover, the fact that one spray coat does the job of multiple coats of lower-solids finishes has made DULUX a vital factor in modern conveyorized finishing methods.

The development of DULUX for Furniture is one more example of the way Du Pont paint chemists work with and for industry. Their constant aim: *new* finishes that cut production costs . . . *new* finishes that make products look better, sell better, last longer.

For expert assistance on *your* finishing problems, contact the Du Pont Finishes sales technician in your area . . . or write E. I. du Pont de Nemours & Co. (Inc.), Finishes Div., Wilmington 98, Delaware.

STILL THE LEADER FOR SALES APPEAL! Twenty-five years ago, Du Pont DUCO proved a lifesaver for the infant auto industry. It cut drying time from days to hours. It gave metal surfaces a lustrous new look of beauty. Today, DUCO remains the unchallenged leader . . . improved many times and still unsurpassed for good looks, durability and sales appeal.

DEPEND ON DU PONT FOR BETTER FINISHES

INDUSTRIAL PAINTS • LACQUERS • ENAMELS VARNISHES • THINNERS • STAINS • AND SPECIAL-PURPOSE FINISHES FOR AIRPLANES AUTOMOBILES • FURNITURE • HOME APPLIANCES • MARINE EQUIPMENT • RAILROAD EQUIPMENT • REFRIGERATORS • SIGNS TRACTORS • FARM EQUIPMENT • MAGNET WIRE • VEGETABLE CANS • OFFICE EQUIPMENT

DUCO AND DULUX ARE REG. U. S. PAT. OFF.

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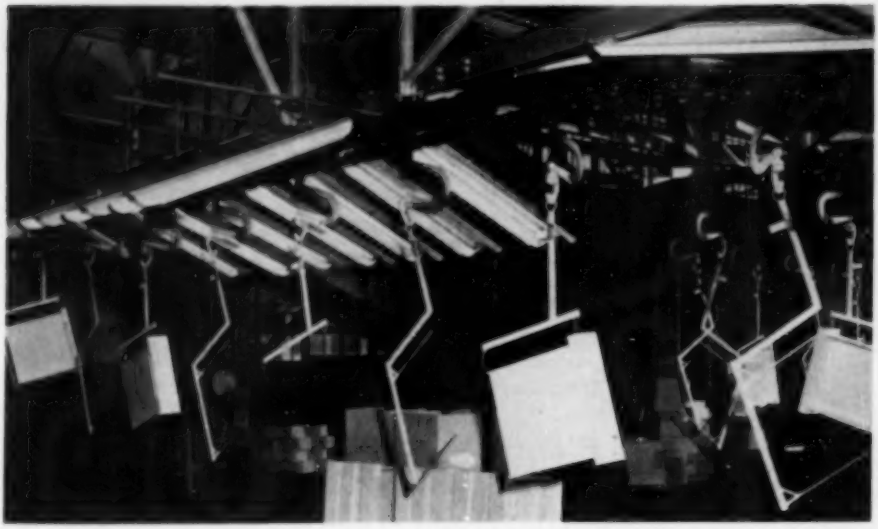
BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*



One of the inspection stations. Notice how the double row of fluorescent lamps sets at an angle to light the entire surface of finished cabinet parts. Oven appears in background.

injected into the oven was perceptably reduced, the white finish would become slightly yellow.

The color of cabinet parts is tested daily with a spectrophotometer. A color variation of plus or minus 1% from the standard curve is allowed for daily production. This variation is not visible to the naked eye. Film thickness is checked with a GE gauge. All parts are thoroughly inspected under batteries of fluorescent lamps before they go to the assembly department.

Horizontal Belt Conveyors Automatically Controlled

After inspection, the parts travel to ten unloading stations. These stations are located at the ten horizontal rubber belt conveyors which feed the assembly lines. These belt conveyors are controlled both manually and electrically for motion. Each time a part is removed from the belt at the assembly line, an electric eye automatically moves the conveyor a sufficient distance to bring the next part within convenient reach of the operator. Pedal controls at both the loading end and the assembly end of the horizontal belt may also be used to advance the conveyor.

Goodyear Aircraft Corporation is constantly doing research for the purpose of maintaining quality and to continue to offer a better, more uniform product to the customer.

Ross Engineering Office Moved

On August 1, the New York office of the J. O. Ross Engineering Corporation, which for many years has been located at 350 Madison Ave., New York City, moved into its new and much larger quarters at 444 Madison Ave., New York 22, N. Y.

Oakite's New FREE Booklet on Paint Stripping

WHAT'S THE BEST WAY TO STRIP PAINT FROM METAL PARTS TOO LARGE TO BE SOAKED IN TANKS?
See Page 3

answers many questions that will lead you to better stripping procedures. You'll want to read more about:

What's the best way to strip large areas of structural metal where a steam supply is available? ***See page 5.***

What is the best method when steam is not available? *See page 7.*

What is the cheapest way to strip metal parts in large volume? ***See page 9.***

What are the best ways to prepare stripped surfaces for repainting? *See page 11.*

What strippers are best for removing oil-base paints?... Synthetic enamels, alkali-resistant plastics or resin-based paints?... Japans, wrinkle finishes, nitrocellulose lacquers, alkyds, phenolics and ureas? ***See page 12.***

FREE For a copy of "How to STRIP PAINT" write to Oakite Products, Inc., 32F Thames St., New York 6, N. Y.

Machine cleaning	**Tank cleaning**	**Electrocleaning**
Pre-paint treatment	**Pickling**	**Barrel cleaning**
Steam-gun cleaning	**Burnishing**	**Rust prevention**

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OAKITE SPECIALIZED INDUSTRIAL CLEANING MATERIALS • METHODS • SERVICE

Flock

ITS USES AND ITS POSSIBILITIES

THE SOFT velvet or suede-like finish made of flock—made by first spreading a surface with adhesive and then bombarding it with millions of flock fibers set on end—is especially adaptable to a wide variety of uses and products. To name a few flock coated surfaces with which almost everyone is familiar, there are the tops of record player turntables; bottoms of some bookends and ornaments to set on tables and shelves; the interiors of glove compartments and trunks in automobiles; interiors of silveware cases; lettering or emblem designs on pennants, shirts, greeting cards and advertising cards; and the realistic "hair" on toy animals, etc.

Among the chief merits that a flock finish offers, we might name offhand the following:

1) A soft flexible yielding surface which has a pleasant "touch appeal", plus certain protective and ornamental features.

2) The possibility of including color effects and figure patterns for identification and decoration.

3) Acoustical properties. Used in some ways and in certain places, a flock finish helps to absorb, soften or muffle objectionable noise.

4) Ease and speed of application to flexible or rigid surfaces which may be flat, curved or irregular. Flock will reach any place that is accessible to a spray gun.

By P. C. BARDIN, Associate Editor

5) Ability to simulate genuine leather and fabric with, in many instances, much better physical properties.

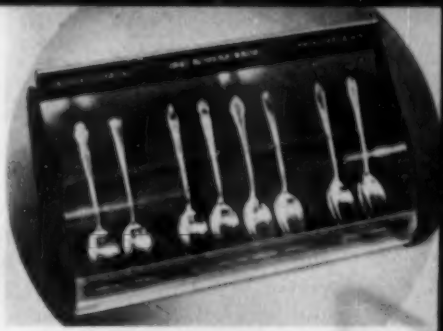
Rayon, Cotton, Wool and Animal Hair

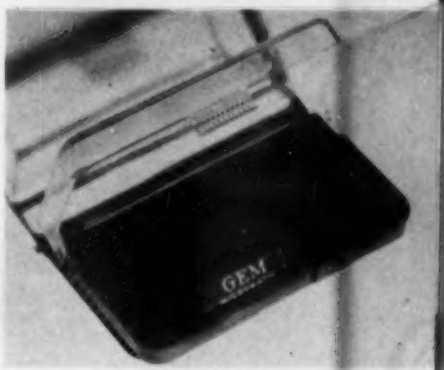
Flock fibers are made from rayon, cotton, wool and animal hair. Fibers are produced in precision cut standard lengths of ½-mm., 1-mm., 1½-mm. and 2-mm., or expressed in inches these lengths would be approximately 1/64-in., 1/32-in., 1/16-in., and 1/8-in. Rayon flock fibers are produced in various deniers, such as 1.5 denier,* 3, 5.5, 10 and 20-denier.

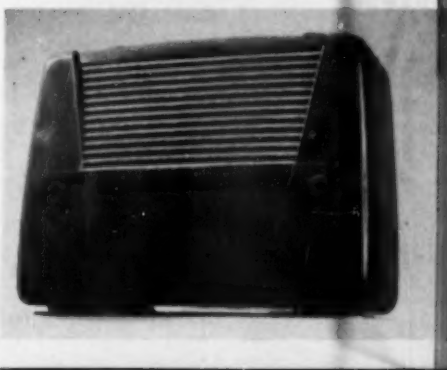
Editor's Note: Referring to lengths of flock fibers, one of our friends writes in his comment as follows: "It has been our experience that 1/8-in. flock is very difficult to apply and leads to a great deal of trouble. People believe that it would make a wonderful surface, but because of the difficulty of application we have not found it too practical."

Rayon and cotton fibers are furnished in white and black and in about 18 standard colors ranging

*Denier—A unit of yarn size (silk, rayon, nylon, orlon,) based on a length of 450 meters of yarn weighing .05 gram.







Pictures at right include the following:

Silverware exhibited in flock coated case. Photo, courtesy Claremont Waste Mfg. Co.

Flock-coated interior of safety razor case. Photo, courtesy Claremont Waste Mfg. Co.

Radio grille attractively coated with flock. Photograph, courtesy of Behr-Manning Corp.

Inside of safety box is coated with flock. Photograph, courtesy of Behr-Manning Corp.

from light pastel shades to deep colors. Both rayon and cotton fibers can be obtained in any special colors to match the applicator's sample, either dyed with commercial dyes or in colors fast to washing, dry cleaning, etc.

Snow-flock on a winter floral piece. Photo, courtesy of Cellusuede Products, Inc.

As a general rule cotton fibers are not cut to precision standard lengths, although they are available. More often they are furnished in random lengths to suit the needs of the applicator who usually selects them for a definite type of surface on a particular product. Both cotton and rayon fibers are available in random cut lengths for suede and novelty effects. Cotton flock is usually applied when a suede effect is desired. Velvet, plush and chenille effects are produced with precision cut rayon fibers.

Wool fibers are furnished in all lengths and in any color for a specific job. They are not used as extensively as rayon and cotton. Wool flock produces more of a dull, harsh, wiry surface and is more adapted to surfaces and products that will be subject to considerable wear.

Animal hair fibers, obtained mostly from goats and cattle, are generally furnished in natural colors. The preponderance of hair flock is produced from goat hair and imported hair; cattle and horse hair are not often used. These hair fibers are often used for coating portions of the interior of new automobiles and airplanes, and for reconditioning the interior surfaces of automobiles and aircraft. Hair fibers also produce a rather harsh, wiry surface which is extremely wear resistant.

Chemically Purified Wood Cellulose Fibers

Another flocking material consists of chemically purified wood cellulose fibers. These fibers, in white and brown, can be obtained in densities ranging from 9 to 34-lbs. per cubic foot. White fibers may be dyed to any desired color. They produce a soft super-fine textured suede effect on surfaces to which they are applied.

The length of flock fibers has much to do with the type of surface to be produced. For instance, rayon fibers 1.5-denier will make a very soft, mousy surface; 3-denier fibers produce a velvet-like surface; 5.5 denier will give a plush like surface; and from 10 to 20-denier fibers produce a rather rough, harsh surface—that is in comparison to the finer deniers.

Before leaving the subject of flock fibers, it should be understood

Industrial Style Note:

The Best-Dressed Pneumatic Tube Cylinders are wearing Flock!

These active, inter-departmental shells whirl their way thru air pressured tubes — get tossed around, bumped and shunted. For that reason, the manufacturer thoughtfully took the precaution to spray the outer surfaces with a deep-pile, protective, all-over cushion of Claremont Flock!

Result:—A long-wearing jacket covering . . . lightweight—inexpensive. Choice of colors permits departmental identification. A fitting improvement — and one that is indicative of the good that Flock is doing industry-wide.

Flock processing by Suedo Finishing Co. New York City

INQUIRIES INVITED

• Claremont Flock is available in bulk in colors, in quantity. For special spraying on finishing purposes. Write for samples, color charts, prices.

CLAREMONT WASTE MFG. CO.
CLAREMONT, NEW HAMPSHIRE

that there are two general classifications of flocked surfaces—suede and pile. Suede finishes are obtained from random cut fibers while the pile finishes are produced from precision cut fibers.

Flock is Well Packaged For Storage and Shipment

Flock fibers are generally shipped in 25, 50 and 100-lb. burlap or canvas bags that have a waterproof paper lining. Flock is also packed in one and two pound bags or boxes for small users. Quantities of fibers between 2-lbs. and 25-lbs. (sometimes up to 50-lbs.) are generally packed in fiber-board containers or small paper-lined bags.

Editor's Note: One manufacturer writes that his flock "is packaged usually in 25-lb. bags for cleanliness, good housekeeping, protection of the material—and this weight will meet the requirements where female help may be handling the material."

Where, How and Why Flock Finishes are Used

Flock may be applied to any surface that will hold an adhesive. It may be used for coating any product regardless of that product's shape or size. Flock finishes are employed for both utility and decorative purposes. They are used for marproofing the undersides of letter trays, jewel boxes, bookends, lamp bases, etc.; for snagproofing baskets and hampers; for coating, insulating and sound-deadening the interiors of aircraft and automobiles; for reconditioning automobiles; for acoustical coverings on radio and record cabinets; also for cushioning record player turntables. An incomplete list of products, parts of which are adapted to flock finishing follows:

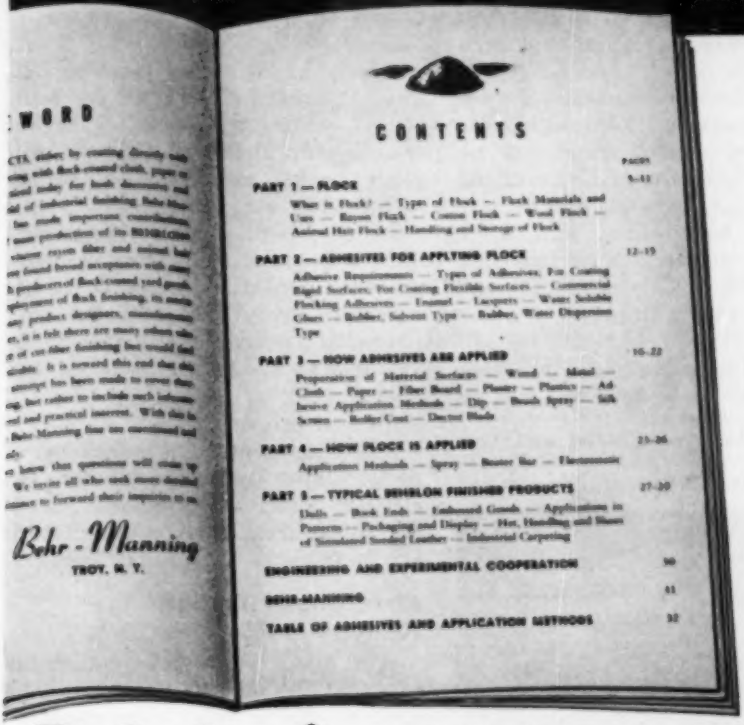
Album and book covers
Greeting cards; Adv. cards
Lamp shades; Emblems
Table model radio cabinets
Linings for drawers and trays
Cedar chests; Jewel boxes
Silver chests; Sun visors
Baby carriages; Instrument cases
Camera cases; Gift boxes
Spectacle cases; Pipe holders
Cigarette boxes and lighters
Display chests; Pool tables
Doll carriages; Novelties
Cloth dolls; Furry animals
Children's games and books
Theatrical decorations
Automobile upholstery and mats
Women's shoes, gloves, belts, and purses

Flock-Coated Papers Are Now Available

Especially noteworthy are the flocked papers now available. One manufacturer offers rayon velour and cotton suede papers in any weight from 35-lbs. to 65-lbs. as standard, with other weights of paper and cardboard either plain or

Flock-embossed goods; Behr-Manning photo.

GET FULL FACTS ABOUT FLOCK FINISHING



WORD

Behr-Manning
TROY, N. Y.

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designed and die-cut to special order. Flocked paper may be used for silk screen process or offset printing of any picture, design or printed matter. Two examples of this work are shown in illustrations with this article. The religious picture is an example of silk screen printing in sepia (rich brown) on a light - cream cotton - flocked paper. These pictures are sometimes used in instructional work in which the cut-out figures are placed one by one on the background to form the picture. The cut-out pieces are flocked on both sides, and when placed on the flocked background, the flock fibers intermesh to hold the smaller pieces in place.

His left hand holds and shakes the screen-bottomed container of flock while his right hand holds an adhesive-coated panel above and against the rotating beater bar. Excess flock falls into shallow container below beater bar. Photo, courtesy of Behr-Manning.

The other is a flock-coated label on pressure-sensitive paper. The flocked side is printed in brown ink. An example of such labels may be found in those furnished by one of the distilleries for gift liquor. The recipient's name is imprinted in brown on a flocked background of biege color.

Also, under the heading of graphic arts, flock is used for book covers, children's books, greeting cards, lamp shades, emblems, souvenir books, memorandum books, menu cards, etc.

In the display advertising field flock is used for show window backgrounds, panels and accessories, advertising cards and portfolios, etc. It also has a wide use in the manufacture of wallpaper and in the preparation of theatrical decorations and properties.

The textile industry makes use of flock for draperies, emblems for athletic wear, ladies' shoes, purses and belts, dress goods and embroidery on table cloths and bed spreads.

Electrostatic Method; Beater Bar Machines

For many years the application of flock was definitely a hush-hush process. Even today some concerns carefully guard their methods of application. However, there are only three known methods for applying flock fibers to adhesive-coated surfaces—by the electrostatic process, by spraying and by sifting or vibrating.

The electrostatic method is patented and is available only through a lease arrangement with holders of the patents. It consists of spraying flock fibers through a high-

(Continued on page 71)

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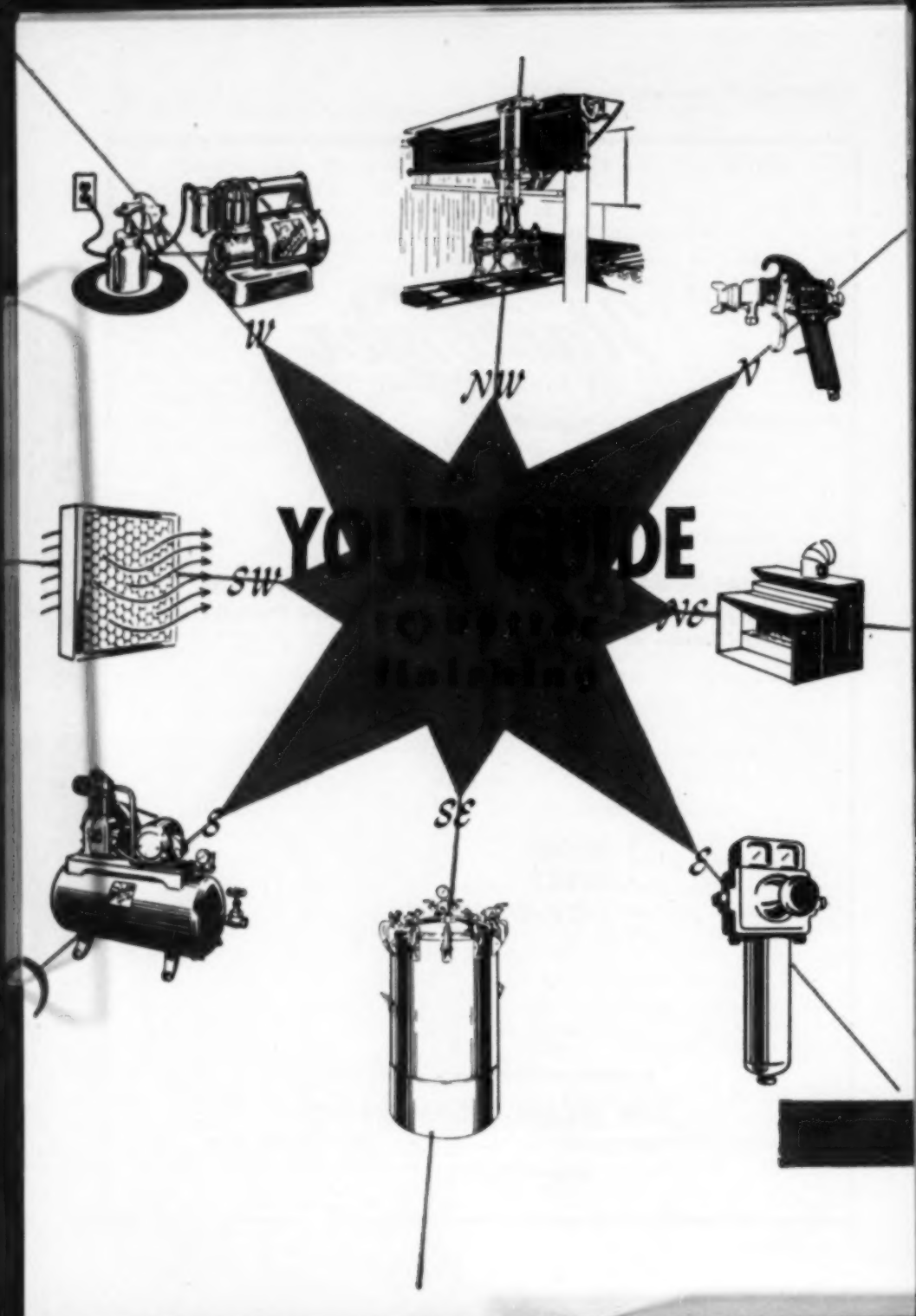
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A decorative label coated with short flock of light sand color, overprinted in brown.

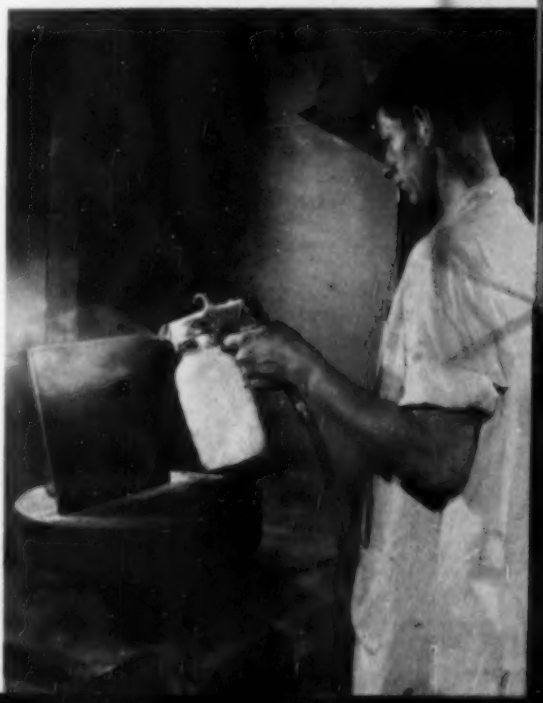
voltage static field in much the same way that paint is sprayed electrostatically. The electrostatically charged fibers are attracted to the wet adhesive coated surface where they become uniformly embedded, every one standing on end. In other words, by this method the fibers are vertically driven endwise into the wet adhesive.

Flock is applied to many flat surfaces, such as paper, cardboard, screen wire, etc., by means of sifting and vibrating. In other words, a supply of flock fiber is sifted or caused to fall through the air (like snow or rain) onto adhesive-coated surfaces which are held in level position and rapidly vibrated up and down by contact with one or more beater bars rotating under a stretched canvas or other supporting medium. Beater bars may be square, hexagon or octagon. A typical single beater bar is shown mounted in position in one of the accompanying illustrations. Speed of rotation is 1200 to 1800-rpm.

The piece to be coated with flock is first coated with the adhesive; then it is placed on the vibrating canvas and flock fibers are caused to "rain" down on it. Vibration (caused by rotating beater bars underneath the stretched canvas bed) bounces the flock onto the adhesive-coated surface, and static electricity (produced by friction of the beater bars against the canvas) causes the fibers to stand on end when they contact the wet adhesive. This method of applying flock produces the deep nap which is so desirable in all high-grade flocking jobs.

In other beater bar machines the stretched canvas is omitted and the under side of the paper, cardboard

Spraying flock from spray gun to which is attached a small container of flock. Overspray is caught and used over again. Photograph, courtesy of Behr-Manning Corp.



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Rely on

R

or panel to be coated is positioned in direct contact with the revolving beater bar. Excess flock fibers fall into a box over which the beater bar revolves.

Photo, courtesy of Claremont Waste.

Methods of sifting the flock onto wet adhesive vary from ordinary hand flour sifters, to conveyor-fed, power-agitated sifters, depending upon the type and size of product to be flocked and volume of production.

Most of the beater-bar flocking machines—even some of the larger units—are portable. A motor is attached to the frame, and the machine is mounted on casters or wheels so it can be moved to any convenient location in the shop.

Flock Spray Guns for Spraying Flock

Spraying flock is just what the name implies. Flock fibers are sprayed on the adhesive-coated surface through a flock gun. This rapid and versatile method of application is performed inside a spray booth. Usually the excess flock is drawn by air to the back of the booth where it drops into a chute leading to a container from which it is withdrawn for re-use.

Flock guns are available in two types. One is directly attached to a small container; the other is used in connection with a material hose which is connected to a large container. For the latter type of setup some concerns install one or more infra-red lamps to heat the metal reservoir where retrieved flock is collected. This use of heat is especially desirable on damp, humid days to keep the flock fibers dry for spraying.

Stored Flock Must be Clean and Dry

Proper storage of flock fibers is highly important. Ideal conditions would be a constant temperature of 72° F., with 50% relative humidity. Flock should not be subjected to excessive heat and dryness, as this may cause undesirable static conditions. Dampness will cause flock fibers to stick together and when moved or handled the fibers may cling together and form into balls, lumps or clusters.

Flock Adhesives and How They are Applied

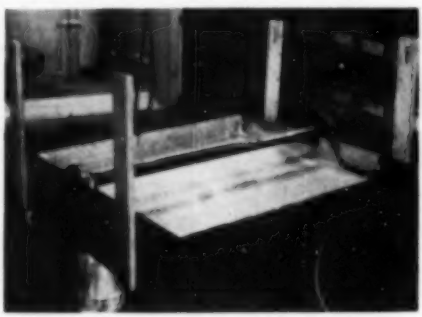
The subject of flock adhesives is most important. There is no broad rule that can be applied to various classes of products. Quoting from "Flock Notes" published by Claremont Waste Mfg. Co., "A good general rule to follow is that, 'The higher the viscosity—the wetter the adhesive—the better will be the results'." Ordinary enamels are seldom used as flock adhesives. Some standard enamels are definitely not suitable for this purpose. For production work it is always better and safer to use a material that is formulated especially for the product and the flock with which it will be coated.

The adhesive coating, to which flock fibers must stick, may be applied by spraying, dipping, roller coating, doctor knife, or by the

silk-screening process. The size and shape of the product and the type of area to be covered with flock will determine which is the easiest and quickest method of application. For instance, if the surface to be covered completely on one side consists of flat paper or cardboard or panels it may be coated by manual or automatic roller coating or spraying equipment. Where only a design, emblem, lettering, etc., is to be coated with flock, the adhesive is usually applied by silk screen stenciling. The interiors of chests or compartments, or the bottom of lamp bases, book ends, etc., are generally sprayed. Small toys or articles to be coated all over are sometimes sprayed and sometimes dipped into the adhesive.

Whichever method of application is used, the important requirement is that the adhesive stay wet long enough for the flock fibers to be applied. If the product to be coated with flock is made of a porous material, its surfaces will have to be sealed before adhesive is put on. Otherwise much of the adhesive would sink in and therefore become useless for holding flock fibers.

If the product is to be dipped, care must be exercised in formulating and conditioning the adhesive so that the excess material will drain properly (leaving a complete coating of uniform thickness) and at the same time allow the dip coat to remain sufficiently wet to receive flock fibers.



This "beater bar" is a single steel bar (hexagon shape in cross section) mounted to rotate in bearings above a shallow box-like container. The back of an adhesive-coated panel, or well stretched sheet of paper or fabric is held in level position against this rapidly-rotating power-driven bar to vibrate the panel or fabric as flock is sifted or rained down from above. Photo, courtesy of Behr-Manning Corporation.

Surface Preparation For Adhesive

Surfaces to be coated with flock adhesive should be smooth, clean and dry. In the event the product is made of a non-ferrous metal (copper, brass, zinc, aluminum, magnesium, etc.) the surfaces should be cleaned and prepared in the same way as for a paint job, followed by a suitable prime coat to protect the adhesive coating from any oxidation action by these metals. Steel and iron products require only thorough cleaning of the surface in a metal washer, vapor degreaser or by solvents, before application of the adhesive.

Too much emphasis cannot be placed on surface smoothness if a first-class flock job is desired. An authority on flock, who has looked over this article, writes as follows:

"Rayon flock, from 1-mm. up in length, will cover up irregularities unless they are extremely bad; the same kind of flock 1/32-inch in length will make them slightly noticeable; rayon, cotton and wool

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The picture is screen-printed in rich brown color on cream-colored flock-coated paper.

flock only ½-mm. in length will slightly magnify the irregularities."

Colors and Types of Adhesives are Important

Adhesives are generally selected to match, or nearly match the color of the flock to be applied. However, it is possible to produce attractive effects by using an adhesive that differs in color from the flock, in which case the adhesive color shows through the flock surface. This applies especially to the light pastel colors.

Flock adhesives may be divided into five classifications—water-soluble glue base, rubber base, varnish or oleo-resinous base, synthetic-resin base and lacquer base. All are available either in colors or clear.

Selection of the most satisfactory adhesive to use will depend upon the type of product and the end use to which it will be subjected. Also, there are many possible variations in formulating any or all of the different adhesives. Naturally the adhesive must be compatible with the flock fibers to be used on it. It must also be compatible with the kind of surface to which it is applied.

This applies especially to products made of plastic. If the flock-coated surface is to be force-dried in an infra-red oven, the drying or curing time of the adhesive will have to be coordinated with the length of time in the oven, temperature, speed of conveyor and any human or mechanical limitations involved in the operation.

Adhesives to be used on cloth must be stable or permanent in color. Also, they must be unaffected by soap and water, and the various chemicals used in dry cleaning. The adhesive coating must be flexible, too. As a rule, rubber-base adhesives are best adapted to textile flocking.

Adhesives used in silver chests and jewel boxes must be so formulated or of such type that they will not discolor or corrode the silverware or jewelry stored in these chests. The same applies to drawer linings for silverware. [*To p. 78*]

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Car reconditioning. Spraying flock to coat the interior of luggage compartment in an automobile. Photo, courtesy of Cellusuede Products, Inc.

Other products that require a specially formulated adhesive for a flock coating are small mirrors, the backs of which are often coated with flock. The adhesive used must be one that will not attack the mirror back.

Rubber-base adhesives are especially adapted to aircraft and automobile interiors where more or less rough usage occurs. This type of adhesive is also well suited to products that will be subjected to excessive wear and/or moisture.

Water-soluble glue and lacquer-base adhesives are often used for paper that is to be coated with flock. Of course, water-soluble glue cannot be used if the product will be subjected to excessive moisture or contact with water. After flock fibers have been applied these adhesives air dry readily and even more quickly if the product is run through a modified infra-red oven. In most cases it is necessary to use a retarder in lacquer-base adhesives to slow down their fast drying.

Oleo-resinous and synthetic-resin base adhesives are used for general

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flocking purposes on metal, wood and plastic products. Any choice between the two adhesives would be governed somewhat by the type of product, its end use, method of drying after flocking, and the available drying time. A synthetic-resin base adhesive will dry faster in room air, or by force drying than an oleo-resin base material. For covering plastic products, selection of the adhesive must be carefully approached to avoid one that might attack that particular plastic.

Every time a new product is added to a manufacturer's line, a separate study should be made of the product, the material from which it is constructed, its end use, and the wear to which it will be subjected. If a flock coating treatment is suggested, the method of adhesive and flock application should be studied carefully. To obtain a satisfactory flocking job requires careful surface preparation and the use of the correct adhesive and flock fibers. Close cooperation with reputable suppliers of adhesives and flock fibers will add much to the success of any flock coating job.

Acknowledgment: When this article was in course of preliminary preparation the author received valuable help and photographs from leading manufacturers of new flock. Naturally he is very grateful for this generous and effective cooperation.

After the article had been edited and retyped, copies of it were submitted to four large manufacturers and suppliers of flock, with the request that they read it over carefully and then make any suggested changes, additions, strike-outs or corrections which they thought might be necessary or desirable in the interest of accuracy and completeness.

In response to this request the Editor received the returned copies of manuscript with letters (one to three pages in length) containing suggested corrections and additions from the following:

H. G. Seaman, General Manager of Electro-Textile Division of Behr-Manning Corp., Troy, N.Y.

Paul L. Flanigan, Vice President of Cellusuede Products, Inc., Rockford, Ill.

R. J. Steinfield of Claremont Waste Mfg. Co., Claremont, N.H.

M. A. Foley of The Rayon Processing Co. of R.I., Pawtucket, R.I.

The several suggested changes (none of them were in disagreement with one another) were incorporated into the manuscript and this article is the result.—*Editor.*

Ferro Appoints Michigan Representative

Ferro Enamel Corporation, Cleveland, Ohio, announces the appointment of S. F. Hettinger as Sales Representative in the Michigan Territory for its Vedoc Industrial Organic Finishes. Mr. Hettinger attended the University of Louisville and has been identified with Industrial Finishing Laboratory, sales and service for 14 years. He lives at Albion, Michigan.

C. L. Warner Represents Ferro Enamel in Eastern Pa.

Ferro Enamel Corporation, Cleveland, Ohio, announces the appointment of C. L. Warner, Haller Oven Co., Pittsburgh, as Sales Representative for Ferro in the Eastern Pennsylvania Territory. Mr. Warner will represent the Cleveland company in the sale of industrial ovens, dryers, metal cleaning equipment and complete synthetic finishing departments.

Ferro Enamel Corporation designs and builds furnaces, ovens and kilns as a part of its line of equipment and supplies for industrial finishing and ceramic ware manufacture.

Ask the Manufacturer *WHO OWNS ONE!*

With apologies to Packard for transposing their famous slogan. Balsa is equally proud of its reputation among leading furniture manufacturers throughout the country. . . . A reputation built on the performance of over 3,000 Balsa conveyor installations. Read what they say:

● "Since you completed installation of the conveyor system in our cabinet and finishing rooms, we are very pleased to say that it is working out nicely. Our production has been stepped up in these two departments to such an extent that we now find ourselves handicapped for machine floor and kiln capacity to take care of it. I feel no hesitancy in telling you that this is one of the finest installations that we have ever made in our plant and one of which we are very proud."—E. D. CHAPIN, *President,* West Branch Novelty Co., Milton, Penna.

● "The conveyor system you developed and installed in our cabinet and finishing departments, as well as the engineering systematizing of our cabinet department, has resulted not only in direct labor reductions but has increased our production in accordance with your original survey. . . . We are very well pleased with the installation, it does what you claimed for it and we are happy to recommend you and your organization. . . . We recommend your manufacturing plant analysis conveyorization and systematizing not only in developing and supervising the installation of the new system, but your ability to direct our plant personnel in methods necessary for economical production over the new mechanical system."—D. D. KLING, Kling Factories, Mayville, New York.

Development Engineers and Designers of Original Furniture Conveyor Installations

BALSA, Inc.

122 EAST 42nd STREET, NEW YORK, N. Y.

NOTICE

As the owner of United States Letters Patent Number 2,317,675, I intend to protect my patent rights to the utmost by bringing suit for infringement where necessary.

One such suit has already been filed against the Kindel Furniture Company of Grand Rapids, Michigan.

A. R. DeBurgh.

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For Assembly, Finishing and Upholstery

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The ways and means of making things impressive varies with the subject. The photographer's art speaks for itself.

However, with products, the most important way to make a *lasting* impression is through a finish that fully enhances every detail of the merchandise.

Allow our Creative Studio to develop a distinctive finish that will impress you, your customers, and worthwhile prospects. No obligation for this sample-finishing service, of course!

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ROCKFORD ILLINOIS

Manufacturers of Protective and Decorative Coatings

Affiliate
GORDON BARTELS CO.
Roller Coating Specialists

Pertaining to Colors

In the May 1950 issue of *Industrial Finishing*, page 64, we noticed an article on Spectro-photo-meter identifies colors. We also note that this article refers to the Munsell Color Co. Would it be possible that you could furnish us with the address of this company? —*W.M.Co.*

We believe the Spectrophotometer is a product of General Electric Co., Schenectady, New York. Perhaps, also, one could be obtained from Gardner Laboratory, Bethesda 14, Md.

According to our records, the address of Munsell Color Co. is 10 East Franklin St., Baltimore 2, Md.—*Ed.*

Luminous Paints Wanted

We are distributors of finishes and refinishes to the wholesale trade in automotive, truck and furniture, as well as to all kinds of woodworking manufacturers.

At the present time we are interested in securing a connection for luminous paint for our trucking customers, etc., who want to letter their truck bodies with it, as well as to use it on various other items in their business.

We will appreciate your either advising us of a good reputable manufacturer whose distributorship for this locality (Memphis, Tenn.) is open, or you to advise them direct of our desires, and if they are interested they can contact us direct. We are also interested, eventually, in a connection to act as broker or manufacturer's agent for wood industrial finishing products, and would appreciate any help you can give us there. Most all of the contacts we've made, regarding the latter, either have their own representative or are not interested in the Southern trade.—*H. & Co.*

In a letter we are suggesting a few names and addresses of firms that may be interested.—*Ed.*

Vinyl Varnish; Flock Adhesive

In July 1950 issue we noticed a letter from S. Co. (page 84) regarding a clear vinyl varnish. Can you give us the names of firms who can supply this type of varnish? Also the names of companies who may be in position to supply flock adhesives for vinyl, as well as other type materials?—*Ver-Mar Products Corp.*

Will you please give me the names and addresses of about three companies in the east who make flock adhesives for application on polystyrene plastic?—*F. F.*

Information supplied.—*Ed.*

Can Supply Adhesive

In July 1950 issue of *Industrial Finishing*, in the "Letters from Readers", (page 82), we note that "W.H." requires an adhesive for silver tinsel on application to wood parts. We would appreciate it if you would let us know the name of this conern; we

Ease of Operation...

SPEEDS PRODUCTION

"Mity-Midget"
Weighs 4 lbs.
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Though powerful and fast, National Sanders have a minimum of vibration because of a patented counter-balance system. The Model 400, "Mity-Midget", has a 3/16" orbital stroke at from 5000 to 6000 rpm. Its operation is smooth and effortless with no tendency to dig or gouge. It is light-in-weight...and features a comfortable grip that fits the hand naturally. Your finishing room employees will be able to produce superior work in the shortest possible time with National Sanders. Write for details today.

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NATIONAL AIR SANDER, INC.
2818 AUBURN ST., ROCKFORD, ILLINOIS

can supply adhesive and also the silver tinsel.—*Edward C. Ballou Co., New York.*

Information supplied.—*Ed.*

Self-Feed Polishers?

. . . What we want to know is the name of manufacturers of revolving polishing machines that also have a continuous wax-feeding unit. We know that there are several of these on the market and would appreciate your supplying us with the names and addresses of the manufacturers. — *N. Furn. Co.*

We do not know of such a machine —except a few makes of floor polishers in which liquid wax is stored in the handle. Can some reader help us. —*Ed.*

Reclaiming Overspray

For the interest of those eastern manufacturers who accumulate quantities of overspray that can be or might be reclaimed, we have a letter from an eastern concern that does some reclaiming, but the firm does not want the fact publicized. However, it is interested in inquiries received by this publication—that is from concerns not too far from its location.—*Ed.*

Gasket Dip Tanks

In July 1950 issue, on page 90, there is a Question and Answer about "Gasket-Dip Coating Wood Handles". You referred to the fact, in the article that someone wrote you about equipment for doing this work. We have a few gasket-dip tanks for sale for dipping dowels, and are willing to sell them so cheap it would not pay to insert a classified ad, so if you will give us the name of the person that inquired we would like to write to them.—*Mapes Woodworking Co., Inc., Whitesville, N.Y.*

Tumble Finishing

We request that you send us a copy of, "The Technique of Finishing Small Wood Turnings, etc., by Tumbling", as mentioned in *Industrial Finishing* for April 1950, page 78.

For your guidance we inform you that the Industreel Finishing Labratorium serves many important Dutch industries, regarding their finishing problems.—*Industreel Finishing Laboratorium, Bilthoven, Holland.*

We acknowlege receipt of your letter of June 6 and a reprint of the article entitled, "The Technique of Finishing Small Wood Turnings by Tumbling". This article has proved to be of great interest to us and we thank you very much for your kindness in sending it along.—*Manufatura De Brinquedos Estrela, S/A, Sao Paulo, Brazil.*

Paints; Lacquer Thinner

We request that you kindly give us the names and addresses of manufacturers of paint for cash registers, for refinishing shops and lacquer thinners. — *Puntarenas Sales Agencies, Lajas, Puerto Rico.*

In a letter we are submitting names and addresses of U.S. firms which, we feel sure, can supply what you want. —*Ed.*

Finish for Vinyl Plastic

We just received July 1950 copy of *Industrial Finishing* and we note on page 8, under, "Random Comment,"

QUALASOLE

AMERICA'S FINEST PADDING LACQUER

Creates new life in wood

- **It is the Modern French polish**
- **Produces a beautiful, rich finish**
- **Can be applied easily with a pad**
- **Quick drying, durable, permanent**
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Order a Trial Gallon Can Today!

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Write for Literature

GATES ENGINEERING CO.

NEW CASTLE, DELAWARE

you mention a "Finish for Vinyl Plastic"—a silk screen enamel. We are interested and would like the name of the manufacturer.—*C.M.J.*

This particular paragraph referred to a product of Monroe-Sander Corp., Long Island City, N.Y. It is probable that other concerns, whose names appear in these advertising pages, also have a product of this kind.—*Ed.*

Amalgamator

We have recently been informed about a product for furniture known as "Amalgamator" of which we are interested. We would appreciate it if you would let us know where we could procure this product.—*F. S. & Son.*

Try H. Behlen & Bro., Inc., and Finishine Laboratories, Inc.—*Ed.*

Padding Lacquer

In your issue of June 1950, on page 72, Arthur Willis writes of a certain brand of padding lacquer. As you have it marked as a "name on request", we would like to ask for that name; also, any information possible for its proper use. Your magazine is tops with us.—*Specialty Finishers.*

The advertisement on page 71 of that same issue answers part of your question. For further information we suggest that you write the firm named in the ad.—*Ed.*

For Filling Holes in Wood

In the May 1950 issue of *Industrial Finishing*, there is an article entitled, "Finishing Mahogany Cabinets" by Irving Strasnick. In this article the statement was made that there are on the market several excellent patching compounds for filling holes. We would like to obtain a list of these patching compounds if possible.—*G. P. Co., Inc. (California).*

In a letter we are naming three firms in Los Angeles, where you can get what you want.—*Ed.*

Kirk & Blum Co. to Occupy New Plant and Offices

The Kirk & Blum Mfg. Co., Cincinnati, Ohio, (dust and fume control manufacturer), recently acquired the entire plant and property of The Cincinnati Planer Co. The plant, located at 3120 Forrer St. in suburban Oakley, will be occupied by Kirk & Blum about the end of the year.

Part of the offices and plant that Kirk & Blum Mfg. Co. will occupy next year.

Eight acres of ground surround the facilities, which include over 100,000-sq.ft. of one-story manufacturing and storage space, all under one roof, fronted by a two-story air-conditioned office and engineering building. The plant is completely equipped with bridge and jib cranes and is served by its own railway spur and arterial highways.

The acquired acreage will allow considerable expansion when necessary. Kirk & Blum's five warehousing and manufacturing facilities, now scattered throughout Cincinnati, will be consolidated in the Oakley plant.

Polyvinyl Chloride Coating System

Polyclad is a corrosion-resisting protective coating. It contains plastics which form a protective film of great corrosion resistance. When properly applied, the Polyclad finish is waterproof; unaffected by weather; and inert to most corrosive atmospheres, dilute acid and alkali solutions, gasoline, oil and food products. A product of Carboline Company, 7603 Forsyth Blvd., St. Louis 5, Mo.

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Sample sent $1.65 ppd

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Will Bleach All Kinds of Wood

MAC'S FAMOUS FASHION BLEACH is available for bleaching all kinds of wood including mahogany, the most difficult wood to bleach. It dries overnight to a desired bleached effect ready for sanding and for the regular finishing schedule. It can be applied by spray using a glass container.

Write for samples and descriptive folder.

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Finishing PHILIPPINE MAHOGANY*

By Rollin H. Wampler
Author of "Modern Organic Finishes"

THE various species of woods known as Philippine mahogany* are sometimes used as veneers and solid wood in cabinet work, paneling and furniture, where genuine mahogany is usually employed. Similar in appearance and texture to some types of genuine mahogany, the Philippine variety is usually considered to be more difficult to finish. While this may be true to some extent, some concerns have been finishing Philippine mahogany for many years with conspicuous success. This fact suggests that, as in the case with any cabinet wood, consideration of the special properties of the wood indicates finishing techniques that are no more difficult than those employed on many other woods.

The techniques used in finishing genuine mahogany are not always successful with the Philippine variety. In this article I shall consider some of the special properties of Philippine mahogany and the finishing problems involved; and I will suggest some typical successful methods of finishing.

Dark Red and Light Red Two Main Classifications

Philippine mahogany is marketed in two main categories—dark red and light red woods. Each type includes several species, but the grading is done on the basis of color. Naturally there is some variation in color within each category, which gives rise to some special problems in finishing. This is also true of genuine mahogany, although perhaps in a lesser degree. The

*The Mahogany Association, Inc. ("After all, there's nothing like mahogany") 75 E. Wacker Drive, Chicago 1, Illinois, maintains that woods from Asia and particularly the Philippine Islands, marketed under the name "Philippine Mahogany" are not genuine mahogany but belong to an entirely different species of woods which are identified as Dip-ter-o-car-ps. However the Federal Trade Commission allows these woods to be called Philippine Mahogany.

same methods of overcoming or equalizing color differences in genuine mahogany are usually successful with the Philippine variety.

The finishing difficulties, referred to in preceding paragraphs arise (aside from color variation) primarily because of the softer texture and larger pores of Philippine mahogany. Also, the wood fibers are longer and the wood is somewhat lighter in weight than genuine mahogany.

Philippine mahogany is usually finished in a conventional 18th Century reddish-brown color, although lighter colors are also used. The darker colors will be considered first, where the dark red grades are usually employed. However, the light red grades of this wood may be finished in these dark colors if or when desired.

Glue Sizing; Sanding; Staining and . . .

Because of its soft texture, many finishers prefer to have the wood glue-sized in the cabinet shop and sanded smooth before it is stained. Other available materials, sold under trade names, which are suitable for replacing glue in the sizing operation, are less troublesome to use.

The purpose of this treatment (sizing) before staining, is to reduce the porosity or absorption characteristics of the wood so that the stain will give a clearer and lighter color, the filler will wipe cleaner, and pin-holing or bubbling tendencies will be reduced in the sealer and topcoat. These sizing treatments also raise and stiffen the long wood fibers so that proper sanding will cut them off clean.

Because of the soft texture of the wood it is advisable to stay away from water stains of any kind. Even the type of stains made by dissolving dyes in hot water and reducing them with special water-free solvents — these stains may raise the grain enough to give serious trouble.

Use NGR Stains and Spray Them

It is best to use NGR (non-grain-raising) stains exclusively. These stains are best applied by spraying, although they may be dipped. To equalize color variation, extra stain may be applied over the lighter areas. Some finishers prefer to spray on a special equalizing stain prior to spraying or dipping the body stain. This equalizing stain is used just like a sap walnut stain, and for the same purpose.

Because of the soft texture of Philippine mahogany it absorbs stain readily and the stain color may come out deeper than is intended. To prevent this from hap-

Presenting some practical methods of finishing dark and light colored Philippine mahoganies to produce durable attractive finishes in dark, natural, toasted blond, grey and novelty effects, and doing it without any trouble from bubbling, blistering or pin holing.

pening some finishers wash coat the wood surfaces with shellac (six or seven parts of alcohol to one of 4-lb. or 4½-lb. cut shellac) before staining. This wash coat minimizes the stain absorption and aids the finisher in producing a light clear color.

Washcoat After Stain; Filler Wipes Cleaner

It is always desirable to wash coat the work after staining to promote clean wiping of fillers and to achieve level filling of the pores. Some finishers prefer to incorporate the wash coat into the stain, to get out of an extra operation, but separate wash coating is probably better practice. Several good proprietary wash coats are on the market; or shellac or lacquer sealer at 5% to 10% solids may be used. After 30 to 60 minutes of air drying the wash coat is lightly scuff-sanded and "blown off" (with compressed air) or wiped clean. Careful light sanding cuts off loose protruding wood fibers that otherwise would cause trouble later on.

Preparing, Applying and Wiping the Filler

Proper filling is especially important on Philippine mahogany because of its large open pores. On this wood, filler is used a little heavier than on others. Twelve or even 14-lbs. of paste filler per gallon of reducing solvent is about right for brushing, but for spraying the reduction may be a little more, such as 10-lbs. or 12-lbs. per gallon.

Filler should not be wiped until its texture is crumbly under the finger tips. Too-wet, smeary wiping does not give a level filling of the pores, and it causes pull-outs which result in pinholes. It is especially important to wipe the filler across the grain. (Finish up by wiping lightly with the grain.) Slipshod, careless wiping will surely cause trouble.

A smooth-textured, buttery filler gives best results on Philippine mahogany. Thin, gritty fillers are not suitable. Proper filling is absolutely necessary for success in finishing. Careful supervision of this operation cannot be over emphasized. In fact, some finishers prefer to double-fill for safety, but if the filling is done right the first time a second application of filler is neither necessary or desirable.

Use Slow-Setting Sealer; Lacquer Shading Stain

If the wood is sized, stained and filled properly, then no further special precautions need be taken. After the lacquer sealer is applied, a lacquer shading stain may be used to further equalize any color variation in the wood, and to highlight certain areas if desired.

Because of the soft texture of Philippine mahogany it is advisable to use "long," elastic sealers and lacquers to prevent mechanical damage from sharp blows. Slow-setting sealers usually do a better job of keying the finish into softer woods than the fast-setting, easy-sanding materials. This keying-in of the topcoats is necessary for good adhesion. Positive, hard-drying fillers will prevent lifting from the larger pores.

The reader may conclude from the discussion so far that finishing Philippine mahogany is costly. The

FINISHES FOR FURNITURE IS OUR BUSINESS!

Quality — beauty and durability — can be achieved in "economical time", when Gilbert Spruance stains, fillers, sealers and lacquers are specified. We supply everything from undercoats to the finish.

Our fully equipped laboratory is constantly developing — experimenting — testing — improving and originating. Staffed by specialists — whose advisory and practical experience is at your disposal — you are sure of getting the exact correct materials for attaining the effects you desire, at minimum costs — in point of time, labor and over-all economy.

Best possible service.

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PHILADELPHIA 34, PA.
WINSTON-SALEM, N.C.

only operation recommended that is not in common use for genuine mahogany is the preliminary sizing with glue or shellac. Even in many furniture plants where only genuine mahogany is used, glue-sizing is standard practice before staining. The only significant difference is that, as a general rule, more care and skill must be exercised when finishing Philippine mahogany. Slipshod work will not get by. This extra care and skill may involve greater expense, but not necessarily so, since proper supervision is really the key to the matter.

Finishing Light-red Woods; Using Lacquer Toner

In the lighter mahogany colors the color variation within the light red category may give more trouble than where a darker, stronger, and deeper stain is used. In the event the equalizing stain or shading stain methods mentioned here are not satisfactory because the final color becomes too dark, there is an alternate method that is sometimes successful. I mention it with some hesitancy because it requires a high degree of skill to be practiced successfully in production.

This method involves the use of a lacquer toner made by thinning an ordinary gloss white or ivory lacquer enamel. One part of lacquer mixed with six to ten parts of lacquer thinner is about right. This thin toner is lightly fogged on the darker areas by spraying. The toner is applied just before staining. It is what you might term "an equalizing stain in reverse". Caution: This toner must be put on very lightly or the effect will be ruined. A little practice will enable the finisher to judge the right amount to use for best results.

When Bleached, Wood Grain Raises More

Philippine mahogany bleaches successfully for blond colors, but the raising of its grain is much more pronounced than with genuine mahogany. This means the bleached surface must be well sanded, wash coated, and sanded again if the finished surface is to be smooth. Bleaching does not always uniform the color of this wood well enough because of mineral streaks and coloring matter that does not bleach out readily. In such cases the toner technique previously mentioned will generally equalize the final color. After the wood surface is filled, lacquer sealer and topcoats follow according to usual methods—except that a very light brown shading stain or wiping glaze may be used for color equalizing or highlighting.

Cheaper Finishing for Wall Paneling

Thus far I have considered only the highest grade finishes for Philippine mahogany. Some cabinet work may not require a fine finish; wall paneling, in particular, must be finished with an eye to the labor costs. Here short cuts must be used. For wall paneling, I suggest a coat of lacquer sealer, followed by sanding and a final coat of flat lacquer for a natural finish. The final operation is steelwooling and waxing.

For deeper colors, stains may be added to the sealer, which gives an opportunity for color equalizing by applying a little more material on the lighter areas. Or for a really

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fine appearance, the paneling may be stained with non-grain-raising or pigment wiping stain, followed by sealing. After sanding the sealer, a shading stain may be used for equalizing the color. Lacquering and waxing complete the job. For this type of work, filling with a paste wood filler is usually out of the question.

Novelty; White Filler in Light Natural Finish

Some novelty effects with Philippine mahogany are quite striking because of the large pores in this wood. These methods are practical only for cabinet work because of the labor expense. One effect involves the use of light stain so that the wood comes out almost a natural color. The pores are filled with a white filler, and the surface is then sealed and lacquered in the usual manner. The large white pores contrast with the natural wood to give an unusual effect.

Grey Toned, Blond and Toasted Mahogany

Another finish is along the lines of the currently popular grey colors. The wood is covered with a light grey toner—not enough to obscure the grain, but just enough to kill the redness in the wood. This is followed by white filler and water-white (clear) topcoats.

A blond or toasted mahogany finish is possible on Philippine mahogany without bleaching. A light ivory toner is sprayed on (like the grey toner mentioned in a previous paragraph) followed by a light brown filler. The finish coats include sealer and lacquer. If the job is skillfully done, an acceptable blond finish will result. A light brown lacquer shading stain or wiping glaze between sealer and lacquer coats may be used for highlighting or for producing a richer tone. Some highly interesting effects are possible with this technique.

As on all porous woods, lacquer sealers, lacquers, synthetics and varnishes show more tendency to bubble or blister on Philippine mahogany than on the denser woods such as maple. The difficulty is especially likely to occur on the sealer coat. Very small bubbles appear over the pores in the wet coat. It is not necessarily an indication of poor filling.

To Overcome Bubbling or Blistering Trouble

Experience has shown three ways to avoid this trouble. No single method seems to be a sure cure in every case; but usually one of the methods will be successful in stopping the trouble. The first method is to use a heavy coat of sealer. It will be observed that a thin coat of sealer will often bubble, whereas a heavy coat will not. The explanation seems to be that a heavy coat of sealer stays wet longer, permitting the bubbles to burst and flow out.

This leads to the second method —the use of retarder in the sealer, or of a slow-setting sealer, to bring about the desired slow-setting properties. The third method involves using higher atomizing air pressures (in the range of 60-lbs. or over) to promote finer atomization of the lacquer sealer.

Bubbling in the final coats does not ordinarily occur unless the fin-

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Specks of dust, grit and lint accumulating on surfaces to be finished, cause blisters and blemishes when painted over. For only a few pennies per job, your finishing department provided with "Dust-All" Tack Rags to wipe off, collect and hold this objectionable matter, can be assured of fine finish jobs.

Ask for further information on "Dust-All" Tack Rags for industrial use and for a sample.

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"WOOD FINISHING" (361 pages)	2.50
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ish is force-dried or given a low-temperature bake. This condition is most likely to occur over the softer large-pored cabinet woods such as Philippine mahogany. It is caused by the escape of expanding air or solvents trapped in the wood or in the coatings.

Slow the Setting of Sealer and Finish Coats

Slowing down the setting of the film with slower solvents, to prevent "case-hardening", will usually stop the trouble; or, making sure the coating does not enter any drying room or oven before the film is well "set" to the touch, will also help. A strong draft of warm air, sweeping over the coated surface between the spray booth and the drying room or oven will cause too-rapid setting, with the consequent danger of bubbling and blistering. Zoned heating—where the film is brought up to baking temperature gradually instead of suddenly—is also a help. In any case, a good job of sealing is the surest preventative of bubbling trouble.

To summarize, Philippine mahogany is a good cabinet wood that can be finished successfully and economically if proper supervision is given to details in the finishing operations. These precautions are based on proper respect for the peculiar characteristics of the wood.

Bruce C. McFadden, Jr. Dies

Bruce C. McFadden, Jr., Secretary & Assistant Treasurer of The Lawrence-McFadden Co. of Philadelphia, died suddenly of a heart attack on the morning of July 31st. The funeral service and burial were held on Thursday, August 3rd. He is survived by his wife, two daughters, his mother, one brother and four sisters. He was 48 years old and had been associated with the company for over 33 years. He was well known in the trade, particularly among the suppliers, many of whom were among his close friends.

DeBurgh Claims Infringement of Conveyor Patent

A. R. DeBurgh, owner of U. S. Letters Patent No. 2,317,675, has filed suit for infringement against the Kindel Furniture Co. and Charles M. Kindel of Grand Rapids, Mich. The suit was filed in the Western Branch at Grand Rapids of the United States District Court in Michigan on Mr. DeBurgh's behalf.

The complaint alleges that the Kindel Furniture Co. knowingly and willfully infringed Mr. DeBurgh's patent in the construction of a conveyor in its plant.

In his complaint, DeBurgh seeks both temporary and permanent injunctions against Kindel's further use of the conveyor; an accounting of profits since its installation; treble damages and attorneys' fees and court costs.

There are some 40 installations of DeBurgh finishing systems and conveyors in the furniture industry, which have been installed by license from DeBurgh or the three conveyor manufacturing companies licensed by him to make installations; George Koch Sons, Inc., of Evansville, Ind.; A. J. Bayer & Company, Inc., Los Angeles, Calif., and E. W. Buschman, Inc., Cincinnati, Ohio.

Max A. Fritz Now V.P. and G.M. of Robertson Co., Inc.

Robertson Co., Inc., (industrial finishes) 1315 W. Kentucky St., Louisville, Ky., announces the appointment of Mr. Max A. Fritz as Vice President and General Manager.

Mr. Fritz is a native of Indiana. He graduated from Indiana University in 1932 and completed his Master's Degree in Organic Chemistry in 1934 at the same university. Since 1934 he has been associated with the coatings industry and plans to continue his career in technical sales and research in this field with the Robertson Company of Louisville, Kentucky.

All dressed up and no place to go?

Our business is proving how wrong that is . . . if your product is "all dressed up" with the right finish, it's bound to go places. The right finish means greater durability, a more attractive appearance, and greater usefulness — which all adds up to empty dealers' shelves and greater customer satisfaction.

We say the **right** finish because what's right for one product is likely to be dead wrong for another. Our chemists work hand-in-hand with the manufacturer to discover the specific finish to do the specific job.

Our emphasis at Stanley on "special finishes for special applications" has already helped many manufacturers to build sales; we'd like to help build yours. Write us about your finishing needs today: The Stanley Chemical Company, East Berlin Conn.

STANLEY

Industrial Coatings

STANLEY CHEMICAL

LACQUERS SYNTHETICS JAPANS ENAMELS

Graco Transfer Pump Delivers 18-gpm.

A new air-operated pump, called the Fast-Flo, for quick transfer of fluids and semi-fluids from original drums to other containers is announced by Gray Company, Inc., Graco Square, Minneapolis 13, Minn.

Delivery up to 18-gpm. is claimed for the Fast-Flo pump. With this extra-high volume, the pump will empty a full barrel of material in less than three minutes. The rate of delivery can be regulated to any degree of speed below 18-gpm.

Using the Graco Fast-Flo pump.

Valuable production time is saved with this pumping unit because many manually handled jobs can be eliminated. The transfer of paint, thinners, lubricants, coolants, alcohols, naphthas, adhesives, non-corrosive chemicals, and many other industrial materials now takes only a fraction of the time formerly required.

Spillage—which causes messy, slippery floors— is reduced to a minimum when a Fast-Flo Pump is used, with the result that slipping accidents are much less frequent and plant "housekeeping" becomes considerably easier.

Since the new transfer pump weighs only 15-lbs., one man can handle it easily. It fits all drums with 2-in. openings. Includes bung hole adapter; 3-ft. hose; air control valve; and snap-on air-line coupler. Overall length of pump, 52-in.; usable length of pump riser tube (less bung adapter), 34¾-in.

Therm-O-Lac (Hot Lacquer)

Therm-O-Lac is a development of "hot lacquer" to meet the exacting needs of wood furniture finishing. While hot lacquers have previously been offered for this purpose, they have often proven unsatisfactory in shop performance, poor in print resistance, and lacking in toughness and ultimate durability.

Therm-O-Lac is well behaved in shop performance; it has build which often permits finishing in one coat over sealer; it levels out to a very smooth film, requiring a minimum of standing and rubbing time and thus a saving in sandpaper and rubbing materials. It has excellent print resistance after an overnight air dry. It is tough and elastic, high in cold-

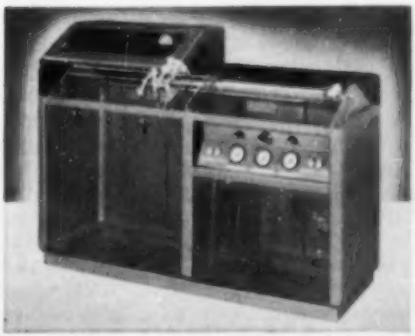
check resistance and in overall durability and resistance qualities.

Therm-O-Lac is available in three solids compositions—Therm-O-Lac No. 7 at 27% solids, Therm-O-Lac No. 1 at 31% solids, and Therm-O-Lac No. 5 at 35% solids. Each type is available in full gloss or in any standard sheen. It is a product of Grand Rapids Varnish Corp., Grand Rapids 2, Mich.

Spray-Mask Color Painting at Faster Rate

A new and rapid, but accurate automatic spray-mask finishing system has been developed and placed on the market by a firm in Grand Rapids, Mich. It includes an automatic spray painting machine (see illustration) for use with standard types of spray masks. This machine mechanically and automatically applies color finishes and decorative designs to metal stampings, plastic products, die castings, and similar products and parts at production line speed.

Decorative name plates, escutcheons, counter displays and others that are to be finished in more than one color, even though one of the colors is a very simple operation and the others involve intricate angles, depressions or raised portions that have to



A compact production machine for accurate spray painting of products through masks.

Stille-Young
LACQUERS
ENAMELS
FILLERS
PAINTS
STAINS

For Highest Quality Finishes
Beauty and Durability

STILLE-YOUNG
Manufacturers
2752 N. CLYBOURN AVE. • CHICAGO 14

"Wood Graining"
ADDS
Eye Appeal

American Graining Plates are photographic reproductions of fine woods.

AMERICAN RICHWOOD PRODUCTS CO.
Graining Plate Division
104 E. Mason St., Milwaukee 2, Wis.

BUILD A BETTER FINISHING DEPT.
Improved
DETROIT HANDY "TAC" RAG
NON INFLAMMABLE
Switch to DETROIT "TAC" RAGS and avoid rejects. Remove all dust, lint and sand quickly, efficiently. The standard for 16 years. Order from your supplier today, or send for sample.
FLAME RESISTANT
DETROIT "TAC" RAG
DETRO MFG. & SALES CO., INC., CULVER CITY, CALIF.

a Ufinco Product
"Your Seal of Dependability"
ONE COAT HAMMERED EFFECT
A uniform one coat hammered effect that may be air-dried or baked. Requires no special instructions or spray equipment. Available in a variety of eye catching colors.
Write today for a sample or five gallons at the drum price.
UNITED FINISH COMPANY
established 1921
PEABODY, MASS.
Representatives throughout New England

be covered uniformly, are handled with equal ease and at the same speed of production by this machine.

Work to be painted is pressed against the spray mask which is semi-permanently installed in the spray opening at the upper left of the illustration. The operator then presses a pedal valve that activates the spray cycle.

Within the machine, pneumatic power travels two automatic spray guns parallel to the surface being painted to apply an even coating. Adjustable to any desired spray density, the spray guns can be set to any angle from 0° through approximately 30° in any direction, and can be regulated to automatically alter the angle of application during transit to assure an even distribution of paint to flat and recessed or raised portions of the surface and to sides and corners of depressions and around mask bridges without shadowing.

Both the length of the stroke and the speed of operation can be accurately controlled to provide a uniform coating in both directions or for heavy coverage in one direction and lighter spray on the return stroke. Timers mounted in the machine assure a full cycle coverage throughout the day and week, even under piecework conditions, where the operator might otherwise try to slight the cycle.

Advantages claimed for this machine over manual spray painting include uniformity in quality and speed of production, elimination of spray booths and cumbersome clamping and holding devices, time saved by not having to pick up and lay down spray guns, higher speed of operation, less floor space required, and the fact that much smaller spray masks can be used since it is not necessary to block off areas other than that immediately surrounding the portion that receives the paint.

Except for a suitable exhaust duct,

Flock processing by Bestcraft Prod. Co. New York City

Flock

subtracts operating noise from this adding machine casting

Deep-piled, sprayed-on surface of cotton Flock insulates interior walls of metal-cast business machine frame; absorbs the sound of operation, eases the nerves, promotes efficiency. If you've a machine that needs quieting down, investigate Claremont Flock. Costs little. Applied easily. Forms permanent bond.

WRITE FOR SAMPLES AND DETAILS

CLAREMONT WASTE MFG. CO.

The World's Largest Manufacturer of Flock

CLAREMONT, NEW HAMPSHIRE

The Sign of
CLINCO
Highest Quality
LACQUERS - - -
- - - ENAMELS
Let us help you with
your finishing problems
THE CLINTON COMPANY
1210 Elston Ave., Chicago 22, Illinois

RESTORE PAINT
IN 2 MINUTES

PER GALLON WITH
MIRACLE
BLUE - BOY
5 GALLON
PAINT REJUVENATOR
Paints, lacquers and enamel products can be restored to their original consistency without opening the can. Units available to handle from ½ pint to 50 gallon drums. Immediate delivery.
Originators of paint rejuvenating equipment---sixteen years---thousands of satisfied users.
Write for folder & prices
MIRACLE PAINT REJUVENATOR CO.
127 E. 9th Street St. Paul 1, Minn.

air line connection, and paint supply, the unit is entirely self contained. All overspray and fumes are confined within the machine.

Three standard units provide spray areas 12-in., 18-in. and 24-in. long and 6-in. wide, although in some types of work the full 8-in. width of the mask opening can be used successfully. All three units are 18-in. wide, and 41¾-in. high overall by lengths of 44-in., 56-in., and 68-in. respectively.

For complete information write the manufacturer, Sepanski & Associates, 409 Henry Ave., S. E., Grand Rapids, Mich., and ask for Folder No. 9-IF.

S. S. Spray Cleans Wounds

S. S. Spray, non-irritating, soapless detergent, designed for emergency use, is ideal for industrial dispensaries. Automatically dispensed from a "Dispenseal" bottle, S. S. Spray is ready for immediate application for the quick removal of oil and grease from the injuries of industrial patients before the use of antiseptics or other medication.

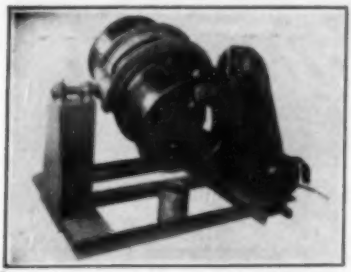
It may also be used for the removal of ointment dressings and as a detergent for soap-sensitive skin. Write The Gebauer Chemical Co., 9410 St. Catherine Ave., Cleveland, Ohio.

Famowood Surfacing Putty Fills Cracks and Holes

The Beverly Mfg. Co., Dept. I.F. 9118 S. Main St., Los Angeles 3, Calif., manufacturer of Famowood, Famoglaze and Famosolvent, has just made available to wood finishers a new Famowood Color Sample Panel showing 13 of the natural wood colors in which this product comes.

Famowood is a plastic filler of nitrocellulose composition which applies with the ease of putty. The manufacturer claims that it is waterproof, non-shrinking, long-lived, and will stick to any clean surface.

The Famowood Color Panel is an



Showing tumbler in operation

CHANGE DRUM TUMBLER

Mixes in Suppliers' Drums

AVOIDS:

The fire hazard of open drums
Contamination of one product with another
Cleaning of equipment between mixes
Residual sludge.

ASSURES:

Uniform mix
Easy inspection during operation
Withdrawals in any quantity needed
Portable ramps for fast insertion and removal of containers
Hand Control at motor to place drum in any position.

Send for literature. Also makers of Inside Drum Cleaners, and Drum Roller Machines for Mixing.

THE VOL-U-METER Company, Buffalo 16, N. Y.

attractive plywood panel 3x8½-in. in which holes have been drilled and an actual sample of the many natural Famowood colors have been filled in, identified by wood color name, and lacquered for protection. The panel has a hole at the top for hanging up. Famowood is supplied in five package sizes.

The Beverely Mfg. Co. also manufactures companion products—Famoglaze and Famosolvent. Famoglaze is a nitrocellulose composition for fine surfacing. It is of a free-flowing nature especially formulated for filling minor defects and closing the fine hair-line cracks, as contrasted to Famowood for filling larger spaces. Famoglaze is made in white and mahogany. It sands easily. Boat builders use it extensively.

Testing samples in the desired wood color listed here and literature describing these products, can be obtained by writing the company.

Blue "Dri-Water" Concentrate

What will "Dri-Water" do? When used to replace ordinary water for rinsing metal and other solid materials, it shortens the drying time and reduces the heat needed to completely dry the surfaces for further processing. Blowing off by compressed air is usually eliminated.

Solid objects made of glass, metals, waxes, hard rubber, plastics and various compositions, when treated with Miskella Dri-Water (patent applied for) show no droplets or globules whatever. A light, uniform coating of water, like a fog blown by one's breath on a cold surface, results.

Due to freedom from water stains, a much more uniform and better surface results. To make Dri-Water, add one ounce Blue Concentrate to ten gallons of water. A product of The Miskella Infra-Red Co., East 73rd & Grand Ave., Cleveland 4, Ohio.

Industrial FINISHING Editorial

Paint Sales Up

For the first five months of this year, as compared to the corresponding months of last year, total sales of all kinds of paint, lacquer, varnish and synthetic finishing materials, as reported by 680 finishing material manufacturers (87% of the total production) were up almost 18% (17.8% to be exact).

Total industrial sales (as distinguished from trade sales) were up almost 14% (13.8%) and of these, paint and varnish sales were up 16¼%, while lacquer sales were up 6½%. Sales of industrial finishing materials, not classified, were up 18¾%.

More people now have a greater appreciation and desire for attractive colors and real protective finishes and, as a result, more and better quality paints and finishing materials are being used everywhere.

Business Must Make Profit to Keep Going

American business has failed to win decisively its case at the bar of public opinion; yet this same system has produced the highest standard of living the world has ever known, Leland Hazard, vice president and general counsel for Pittsburgh Plate Glass Co., stated recently.

Critics of the American business system—the profit and loss system—have successfully spread the impression that there is something wrong about operating at a profit. Result is that business generally has been timid about profits—a little too eager to explain that earnings were not really as high as they might seem.

Mr. Hazard announced that people expect business, big and small, to make a profit. Various polls have been taken. They show that people think business makes a profit up to 40% on its investment. Almost no one thinks the profit is as low as it really is—less than 10% on the average. Business has really disappointed the public in the amount of profit it makes.

Profits are a good thing and business would do better to say so. A good profit tells a business man he is serving the public well. Meager earnings or a loss tells a businessman he is failing to produce what the public wants at a price the customer will pay.

Mr. Hazard recommended that business be more blunt in explaining itself to the public. He said that relative to taxes there is a widespread idea that business can be stuck with taxes, and individuals thereby can be saved from tax burdens. Actually, taxes like raw materials, labor and distribution, are just another element of the cost of the product. The consumer eventually pays.

Furniture Buyers Appraise Finishes

According to an article in *Coatings*, published by the National Paint, Varnish & Lacquer Association at Washington, D. C., the *Retailing Daily* made a survey of the furniture field and obtained some interesting data.

As to types of finishes preferred, blond finishes are the most popular,

with a rating of 75%. Last year they hit 84%. Natural wood finish is next, with Cordovan running a poor third.

The most pertinent answers, however, were in reply to the question, "What improvements do you think manufacturers could make in the styling of traditional and modern furniture?" The replies showed that buyers were keenly aware of the finish and stated that more attention should be paid to the finish on furniture, better drawer interiors which should be sprayed and rubbed, and more stress on the finish and edge veneering.

The attitude of furniture buyers in regard to the finish is evidently the reflection of what customers think, and credit must be given to the industry national advertising program and various promotions which show that better finishes mean better values.

Blackening Process for Metal

Chemical processes for blackening the clean bright surfaces of iron and steel, brass, copper and copper alloys, and zinc and zinc alloys, to make them corrosion resistant and to provide either an ebony black finish or a base for paint, lacquer or enamel, are illustrated and described in a new and colorful 8-page bulletin published by Enthone, Inc., 442 Elm St., New Haven, Conn.

A large variety of objects, both small and large, are blackened with Ebonol "S" processes which have been in industrial use since 1938. These include such items as guns, skates, appliances, clocks, watches, pencils, belt loops, buckles, bicycle parts, sewing machines, buttons, shoe hardware, locks, safety pins, bearings, gear parts, taps, drills, etc.

Changed Formulation Saved Extra Operation

You can never tell how much may be gained by taking various individuals into the plant. A salesman of metal cleaning compounds was watching an automatic finishing machine on which aluminum die-cast pieces were being sprayed with synthetic baking enamel. He noticed they were being coated and baked twice. He asked the finishing foreman why this was necessary. The foreman replied, "See that offset ridge around the top? Well that little 1/16-in. ridge will not cover with one coat, so we have to run them twice."

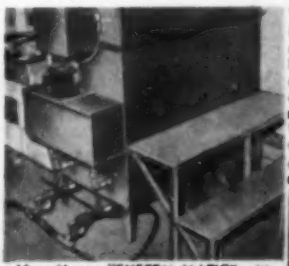
The salesman asked, "Have you ever considered having your supplier change the formulation of the enamel so that you can get proper coverage with one coat? I believe you will find this possible."

That is exactly what they did. Formulation of the material was altered, and one coat now covers the ridge satisfactorily. Outside people sometimes have pretty good ideas.

Replaceable-Type Air Filter

A new 6-page illustrated bulletin 8½x 11-in. gives complete information about Amer-glas replaceable-type air filters, what their merits and sizes are, how to plan to use them, how to take care of them, etc. This bulletin No. 211 is free from American Air Filter Co., Inc., Louisville 8, Kentucky.

Eliminate 75%
of Cleanout Labor
with this ALL NEW
MASCO
"System-matic"
VAPOR DEGREASER



New Masco "SYSTEM-MATIC" with "Self-cleaning" operation

You get longer, more efficient service and greatly increased cleaning ease with the new "System-Matic." Features built-in water separator, rinse liquid reservoir, and pump; equipped with working platform and removable burners for easier cleaning. Write today for complete information on the Masco "System-Matic," and learn how you can increase efficiency at a savings in time and labor.

MASCO CORPORATION
277 E. Erie Street
Milwaukee 2, Wisconsin

INFRA-RED OVENS
(Lamped or Lampless)
Individually engineered in stationary, conveyorized, portable or special designs
Manufactured by
THE MISKELLA *Infra-Red* COMPANY
Main office: 7305 Grand Ave., Cleveland 4, Ohio

PINHOLING PROBLEMS
on wood panels?
Many concerns use "Liquafill Sizing"
For information, write:
THE LIQUAFILL MFG. CO.
823 Richard St. Dayton 3, Ohio

Darlington Represents M. & W. in Baltimore & E. Penna.

Maas & Walstein Co., manufacturer of lacquers, enamels, and synthetics, Newark, Chicago, and Los Angeles, announces the appointment of another sales engineer to the company's eastern division.

Mr. I. T. Darlington has had almost 30 years experience in research, development and technical service of lacquers and synthetic enamels, and is fully familiar with baking equipment and electroplating techniques. He will concentrate on servicing manufacturers in the Eastern Pennsylvania area, including Philadelphia, Baltimore, Md., and Harrisburg, Pennsylvania.

Painting with Aluminum

Almost everything you need to know about aluminum paints and how to use them is revealed in a new free book of 32 colorfully illustrated pages 8½x11-in., published by Aluminum Co. of America, Gulf Bldg., Pittsburgh 19, Pa. Three standard types of aluminum paint are offered for various uses, but special aluminum paints can be formulated to meet certain special requirements. Questions and Answers are included too.

Random Comment on the Industrial Scene

(Continued from page 8)

more realistic approach of plans, materials and equipment for high production. This shift of emphasis will enable over 350 exhibitors and 35,000 registered technical, engineering and production men to organize and properly integrate their important contributions toward the building of a National security force equal to the challenge now facing the country.

* * *

Insulates Holes in Metal. Announcement is made of a newly designed metal-formed grommet completely covered with rubber. It is designed for insulating blanked holes in metal to prevent cutting, chafing, shorting and rattling of wires, cables, conduit, tubing, etc., which pass through the holes. The new grommet is called the Arco "Sta-Put" series 3120 and is manufactured by Automotive Rubber Co., Inc., 8601 Epworth Blvd., Detroit 4.

* * *

Chemicals from Shale. In its research laboratories, the Bureau of Mines has demonstrated that highly aromatic stock can be produced by retorting pulverized oil shale in a radiant heat zone at a temperature of about 1500 degrees F. Completed in a fraction of a second, the retorting produces a gasoline-boiling-range material with an octane number near 100 that also may be used as a source of

aromatics. In addition, the retort gases and the higher-boiling fractions contain large quantities of ethylene, propylene, hydrogen, carbon monoxide, butadiene, naphathalene, and anthracene. If radiant retorting can be proved commercially feasible, the yields of benzene and toluene available from oil shale through normal retorting will be increased many times over.

* * *

Styrene Preferred. Leading department store buyers in the U. S. prefer the term "styrene" to "polystyrene," a poll conducted by Monsanto Chemical Company's Plastics Division has disclosed.

In a survey of 5000 buyers throughout the country, Monsanto found that 93% of the replies favored the shorter term to describe this popular member of the plastics family. A total of 1163, or more than 23%, responded to the mailing.

Charles Lichtenberg, assistant general sales manager of the Plastics Division, said that the results of the poll are "strong evidence of the growing trend toward simplification of generic and trade names."

Buyers replying in favor of the shorter term said they selected it because it was easier to pronounce, easier to remember, easier to use and easier to spell. Others commented that it was more appealing and lent itself to uniform usage.

Dualheet Inc. is Successor to Beck Equipment Co.

Dualheet Inc., has acquired the paint heater and equipment division of Beck Equipment Co. Mr. Louis Beck is president of the new company and Mr. Richard Precker is general sales manager. Sales effort of Dualheet, Inc. will be concentrated toward national distribution of the new Dualheet Paint & Air Heater Model 225 and the Beck Lacquer Heater. The Dualheet Paint & Air Heater Model 225, has received full approval from Underwriter's Laboratories. The firm's address is 10118 Detroit Ave., Cleveland 2.

TOMORROW'S Products Tested TODAY

A service to aid industry in producing longer-lasting and better-looking products. Quick predetermination of durability and permanency by actual exposure test in South Florida. Write us today for full information.

SOUTH FLORIDA TEST SERVICE
EST. 1931
4201 N. W. 7th St. Miami 34, Fla.

SOLVENTS RECOVERED BY
THE LOFGREN PROCESS

We RECOVER YOUR
SOLVENTS & THINNERS
From Wash Thinners - Spoilt Lacquers - Degreasing Machine Sludge, etc.

Each customer's shipment, whether one drum or a carload, receives PROPER AND SEPARATE TREATMENT. Write to:
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101 Central Ave., Westfield, N.J.
or
HAMMOND SOLVENTS RECOVERY SERVICE
241 Brunswick St., Hammond, Ind.

CONSTANT STUDY AND RESEARCH . . .
one of many reasons for the
INDUSTRIAL FINISHING leadership
enjoyed by the
NATIONAL
LACQUER & PAINT CO., INC.
7415 S. Green St. Chicago 21, Ill.

YOUNG BROTHERS OVENS
for baking and drying

Designed and built to produce the finest results in baking processes such as PAINT FINISHING, METAL DECORATING, INSULATION BAKING. Batch or Conveyor Types for any fuel. Write for Bulletin 3.

YOUNG BROTHERS CO.
1835 Columbus Rd. ***Estab. 1896*** **Cleveland 13, O.**

FOR ALL FINE FINISHES
TAC-ALL TACK RAGS
Packed bulk or individually. Prices and samples on request.
GEO. W. RENNER CO.
2389 Lillie St., Ft.Wayne 5, Ind.

Write for Catalog of
Paint Testing Apparatus
GARDNER LABORATORY
Bethesda 14, Md.

Metal Show, October 23-27

The 1950 Metal Show, to be held in Chicago during the week of October 23-27, will be the year's most constructive gathering of men, materials and equipment. The "Congress", covering the technical developments in metals, both ferrous and nonferrous, will be held in scores of meetings, lectures, forums and seminars in Chicago's downtown hotels.

The International Ampitheatre will be the scene of the "Exposition", devoted to the operating and non-operating displays of materials, processes, equipment and services. Both "Congress" and "Exposition" will stress the need for High Production in all phases of the industry's planning and operation.

Corrosion Lecture Course

Nine lecture periods (2 to 2½ hours each), with adequate time for discussion, have been scheduled tentatively at Cleveland, Ohio, for the Case Institute of Technology corrosion short course to be held September 25 to 29, under direction of Dr. R. B. Hoxeng. Dr. Hoxeng said the lecture course is designed as a refresher for those actively engaged in corrosion prevention, yet will not be too advanced for those just entering the field.

The Case Institute course is the second such undertaking in which NACE has cooperated, the first being at the University of Texas, Austin, in September, 1949. Case lectures will be given two daily except Friday during the week of September 25. Write to R. B. Hoxeng, Case Institute of Technology, Cleveland 6, Ohio, for further information and application blanks.

D. C. Carruthers of P. P. G. Co. Died July 14

Douglas C. Carruthers, general manager of Pittsburgh Plate Glass Company's paint plant at Springdale, Penna., died suddenly of a heart ailment, July 14, at his home.

A native of Plymouth, Michigan and a graduate of Michigan State College, Mr. Carruthers had been associated with the firm's Ditzler Color Division at Detroit prior to World War II. Discharged with the rank of colonel after five years service in South Pacific areas, Mr. Carruthers then returned to Pittsbugh Plate's paint plant at Milwaukee.

He was appointed manager of the ultamodern plant at Springdale when that facility went into production during 1947.

Classified Advertising

Rate: $1.00 per line per insertion—minimum $5.00

POSITION WANTED.

Paint superintendent or service man, 20 years' experience with lacquer and synthetic finishes, would like to locate in Michigan, Ohio or Indiana. Address IF-750, care Industrial Finishing.

FINISHING FOREMAN WANTED.

Radio cabinet factory requires experienced foreman, accustomed to high speed production to take complete charge of finishing room employing 75 people. Good salary. Address IF-751, care Industrial Finishing.

ATTENTION PAINT SUPERVISORS!

DESIRE APPLICATIONS FROM PAINT FOREMEN EXPERIENCED WITH DIP AND SPRAY BAKING ENAMELS, ALSO GRAINING OF SHEET METAL PRODUCTS. MAN WITH CHEMICAL TRAINING DESIRED, BUT NOT ESSENTIAL. FINE OPPORTUNITY FOR THE RIGHT MAN. ADDRESS IF-752, CARE INDUSTRIAL FINISHING.

LACQUER CHEMIST WANTED

Chemist experienced in the formulation of industrial lacquer products. This is an excellent opportunity to work with congenial associates in an AAA-1 company located in the east. Please write in detail. All replies confidential. Our personnel have been informed of this ad. Address IF-753, care Industrial Finishing.

CONSULTANT WANTED

With uptodate experience in formulation of coatings for cans, closures and similar lithographic finishes, to guide reputable manufacturer with capable staff. All replies held in strictest confidence. Our employees and technical staff know of this advertisement. Address IF-754, care Industrial Finishing.

SALESMAN WANTED.

Experienced Paint Spray Equipment salesman. Good salary plus commission. Address IF-712, care Industrial Finishing.

SALESMAN WANTED.

Have some territory available for Industrial Finishing salesmen in middlewest and southern states. If you have a following and would like to work with aggressive manufacturer paying above average commissions, selling thinners, sealers, lacquers, stains, enamels, please communicate with us. STANDARD INDUSTRIAL PRODUCTS, INC., Evansville 4, Ind.

PAINT DEMONSTRATOR.

Midwest firm manufacturing complete line of industrial finishes needs experienced service man. Very attractive position with old established company. Our men have been informed. Address IF-755, care Industrial Finishing.

SALESMAN WANTED.

Industrial Finishes. Michigan and Wisconsin territory. Mid-western manufacturer. Address IF-756, care Industrial Finishing.

SALES REPRESENTATIVE WANTED

For state of Wisconsin; sales representative for product finishes, technical background preferably from a production finish laboratory. Selected candidate will be backed with a line of high quality specialties, an excellent technical staff, a successful and aggressive rapidly growing company strategically located. Application by letter only. State qualifications and background in detail. MIDLAND INDUSTRIAL FINISHES CO., East Water St., Waukegan, Ill.

WANTED TO BUY.

Will buy your dirty Thinners and Solvents. Send sample or letter giving approximate contents and solids. Address THE JOHANN CO., Room 416, 1180 E. 63rd St., Chicago, Ill.

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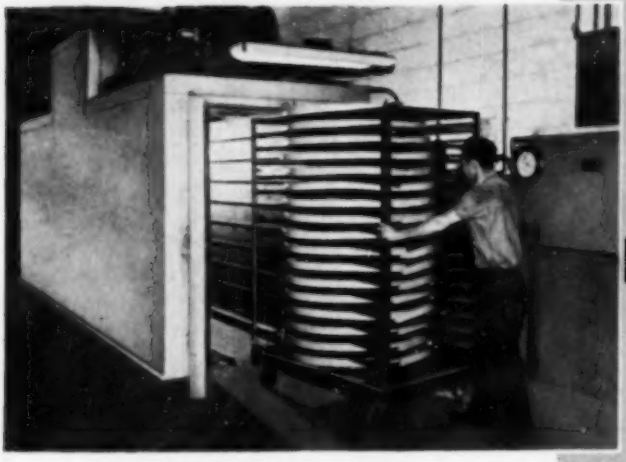

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